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ABSTRACT

Differences in levels and determinants of earnings for men and women college graduates are examined. Perspectives from human capital theory, research on the socioeconomic achievement process, and research on segmented labor markets are used to design models of the determination of earnings. Data are taken from the National Opinion Research Center longitudinal survey of college graduates for 1961. Earnings measured in 1962, 1964, and 1968 demonstrate a growth in the earnings gap between men and women over time, with greater earnings for men. A gap of $1,900 in 1964 is attributed to men's greater returns from hours worked, by their likelihood of working for profit-making employers, by the concentration in high-paying occupations, and by their higher 1962 earnings. It is suggested that in 1968 men made more money than women because their 1964 earnings were greater, they were more likely to hold doctorate degrees, they were more likely to work in high-paying professions and management, and placed higher value on "making money." The recent rise of the women's movement and the development of affirmative action programs are discussed as having an influence on women's career decisions. Women's entry into traditionally male professions is also noted. It is suggested that the greater supply of full-time women workers today may actually cause the earnings gap to remain rather large. The questionnaire items for analysis of earnings is appended. (Author/SF)

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THE DETERMINATION OF EARNINGS AMONG COLLEGE GRADUATES

by

Joe L. Spaeth

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ABSTRACT

This study focuses on differences between men and women in the determination of earnings and on components of the sex gap in earnings. Data are taken from the NORC longitudinal survey of college graduates from the class of 1961.

An important aspect of these data is the growth in the earnings gap over time. When earnings were measured in 1962, men made approximately $5,100 and women $4,500 per year. In 1964, men's earnings were $6,900, compared with women's $5,000. By 1968, men earned an average of $11,000 a year whereas women earned only $6,800. Furthermore, the entire gap for 1962 was explained by the men's greater labor force experience prior to graduation. In 1964, the gap of $1,900 was explained by the men's greater returns to hours worked, by their likelihood of working for profit-making employers, by their concentration in high-paying occupations, and by their higher 1962 earnings. In that year, however, women's returns to earlier labor force experience were greater than men's.

In 1968, the men made more money than the women because their 1964 earnings were greater, and they were more likely to hold the doctorate, to work in high-paying professions and management, and to value "making a lot of money." The earnings gap was also due in part to men's greater returns to college quality, 1962 earnings, holding a master's degree, and working for a profit-making organization.

The earnings gap would have been even larger if women had not received substantially greater returns to working full time in 1962, to 1964 earnings, to enrollment in graduate or professional school between 1964 and 1968, and especially to hours worked in 1968. Women's greater returns to hours worked largely offset men's more favorable circumstances, and relatively little of the earnings gap was account for.

It is important to realize that the women's advantages in returns were associated with the extent of their employment. Because women are now more likely to be employed and to work full time than they were in 1968, it would be tempting to expect the earnings gap to decline as women's employment has increased. However, the women in the class of 1961 may have been paid a premium for behavior that was rather rare. To the extent that a scarcity of experienced women workers increased their earnings, the greater supply of such workers today could well counteract the premium paid for experience in the past.

INTRODUCTION

The focus of this report is differences in levels and determinants of earnings between men and women in a cohort of college graduates. Perspectives from human capital theory, research on the socioeconomic achievement process, and research on segmented labor markets are used to design models of the determination of earnings.

The data on which this report is based are from a five-wave longitudinal survey of the college graduating class of 1961. Questionnaires were administered by the National Opinion Research Center (NORC) to a national sample of June 1961 graduates in 1961, 1962, 1963, 1964, and 1968.

The historical context of this college class is, of course, quite different from the context of today. In the spring of 1961, this cohort of graduates was still in its senior year. John F. Kennedy had been inaugurated as President less than six months before this class graduated. In an effort to integrate such public facilities as buses, lunch counters, and rest rooms, the civil rights movement was concentrating its activities in the South. In 1961, the budget for NASA was under one billion dollars. By 1964, it had risen to about five billion.

The expansion of NASA during the 1960s not only created substantial job opportunities for graduates in the sciences and engineering but was also a sign of the general expansion of opportunities for college graduates that took place during that period. The cohort of 1961 college graduates entered the labor market in a period of great opportunity. Inflation was a minor problem, and unemployment among college graduates was almost nonexistent. Manpower planners were worrying about shortages of scientific and technical personnel, not about what to do with an oversupply.

These expanding opportunities were most likely to be available, however, to white males. The civil rights movement was in its early stages, and the women's movement was still some years off. Most women college graduates were likely to work in traditionally female occupations. Over half of the women in the sample for this survey went into school teaching. Employment opportunities were good in traditionally female fields, as they were elsewhere, but school teaching, social work, nursing, and librarianship were not fields with great potential for earnings. Neither the women's movement nor affirmative action programs were available to direct women to less traditional areas.

In general, then, this college graduating class represents a kind of baseline against which to compare later ones. Instead of having

employment policies constrained by affirmative action, employers could hire more or less as they chose. Instead of tight or uncertain labor markets, opportunity was good and was expanding. Instead of being committed to the labor force, nearly all women in the class of '61 were committed to raising a family. Most left the labor force at the birth of their first child and did not return until the youngest was in school. Instead of low rates of attendance at graduate schools, this class was marked by its enthusiasm for advanced study: 42 percent of the men and 25 percent of the women were enrolled for further education in the year after graduation.

Although the situations of the class of '61 and that, say, of '78 were different, the basic dimensions of the career development process were probably rather similar. The crucial next steps for a man were further enrollment, employment, or both. To these alternatives a woman added marriage and child rearing, but only the latter was likely to remove her from the labor force or school. In neither 1968 nor 1978 was marriage enough to deflect a woman from activities more closely related to career development.

In the year after college, many graduates were continuing their education and thus were investing in general skills with future earnings payoffs. Most of the remainder were at work, thereby accumulating experience that would also have earnings payoffs.

Human Capital

Because work experience represents on-the-job training, it is a form of human capital investment (Becker, 1975; Mincer, 1974). Work experience is actually a surrogate for on-the-job training, which increases a person's stock of skills relevant to his or her job. Many of these skills are specific to the firm that one works for (Becker, 1975).

Another important aspect of human capital is educational achievement, which represents general skills applicable to a variety of employment settings. Education is also an important determinant of earnings (Duncan, Featherman, and Duncan, 1972; Mincer, 1974; Sewell and Hauser, 1975). Of course, it is possible that the purported effects of schooling are actually those of intellectual ability (Griliches and Mason, 1972; Hause, 1972; Mincer, 1974; Taubman and Wales, 1974, 1975; Wachtel, 1975). To the extent that ability is not taken into account, estimates of the effects of a higher degree, for example, could be inflated. Since no measure of ability is available in this data set, the graduates' college grade point average and the quality (selectivity) of their colleges will be used both as surrogates for ability and in their own right. Although an actual measure of ability would have been preferable, the combined surrogate will undoubtedly reduce substantially any biases in the equations resulting from the omission of measured ability.

Socioeconomic Achievement

The sociological perspective on earnings embodied in research on socioeconomic achievement (Duncan et al., 1972; Sewell and Hauser, 1975) stresses the importance of education, as does human capital theory. However, in contrast to human capital theory, which views the central aspect of earnings as the way in which they cumulate to make up lifetime income, research on socioeconomic achievement has concentrated on annual earnings. Furtnermore, this research has been guided by the idea that achievement takes place in a framework defined by the human life cycle (Blau and Duncan, 1967; Duncan et al., 1972; Spaeth, 1976b). This perspective leads to treating annual earnings as the outcome of a process defined in part by stages in the life cycle. As a result, models of the socioeconomic achievement process include variables taken from all stages of the life cycle. In particular, a concern with the intergenerational transmission of status has focused attention on socioeconomic characteristics of the parental family as causes of a person's achievements. Parental status influences education, an important variable in its own right. Education influences occupational status, which in turn influences earnings.

In the sociological perspective, the influence of parental status on the earnings of college graduates is of considerable interest. At a minimum, four variables are required to tap adequately the socioeconomic aspects of a person's family of origin: father's and mother's education, father's occupation, and parental family income. Since the last of these is an indicator of the intergenerational transmission of earnings, it is particularly important for our purposes.

Although most analyses indicate that the impact of parental income on earnings is modest, especially when that effect is assessed net of education (Bowles, 1972; Jencks et al., 1972; Sewell and Hauser, 1975), it is important to estimate the influence of this variable among college graduates and to ascertain whether there is any pattern of development in that influence during the period immediately after graduation.

Research on socioeconomic achievement also suggests another type of variable that may differentially explain the earnings of men and women. Of particular importance for persons just out of college is the fact that they are (or were in the 1960s) embarking not only on occupational careers but also on a new life-cycle stage--marriage and parenthood.

The early 1960s were a period in which women's values regarding work and raising children were quite traditional. As far as college women were concerned, the baby boom had not ended; large numbers of them would get married, have a child, and leave the labor force. Whether women themselves planned to enter occupations and work settings that would be compatible with family formation or whether their employers expected them to do so, earnings opportunities for married women and those with children were constricted. If employers took family status into account, they might well pay married women or those with children

less than others. The evidence is clear that family status lowered the earnings of women and raised those of men.

Studies of socioeconomic achievement have repeatedly shown that expectations about educational and occupational achievement influence career outcomes (Duncan et al., 1972; Sewell, 1971; Sewell and Hauser, 1975; Sewell and Shah, 1968a, 1968b; Spenner and Featherman, 1978). At the same time, more general "achievement" motivations seem to have relatively little connection with educational or occupational achievement (Spenner and Featherman, 1978). The data on 1961 college graduates contain indicators of specific and general orientations bearing on aspirations for financial success. Respondents were asked whether it was very important that their career occupations offer opportunities for making "a lot of money." They were also asked to choose from a list of adjectives those that were characteristic of them as persons; this list included indicators of drive or ambition. Presumably, persons who want to make a lot of money or who have high levels of drive are more likely to have higher earnings than are those without these attributes. On the other hand, motivation may have very little connection with the process by which the earnings of one person increase and those of another do not (see Duncan and Morgan, 1976, pp. 421-28, for evidence in support of this view). The extent to which the desires or personalities of workers influence their earnings will be assessed later in this report.

Labor Markets

A third perspective on the determination of earnings is provided by the literature on segmented labor markets. Dual labor market theory holds that labor markets can be divided into two segments, the core and the periphery. Core firms are monopolistic or oligopolistic enterprises that are sufficiently large to withstand economic fluctuations, hire the most able workers, provide them with employment security, and pay good wages. Periphery firms are small, subject to the vagaries of the market, and unable to pay competitive wages for the best talent. As a result, periphery firms hire women and members of racial and ethnic minority groups (Averitt, 1968; Bibb and Form, 1977).

A related distinction has been made between internal and external labor markets. The former occur within individual firms, each of which has certain jobs that constitute "entry ports." Recruitment for these jobs is done outside the firm in traditional (external) labor markets. Recruitment to higher positions then takes place within the firm (Doeringer and Piore, 1971). The theory of internal labor markets intersects with Weber's (1968) theory of bureacracy. Bureaucratic offices are occupations that serve as bases for careers in the bureaucracy. Access to internal labor markets is limited to employees of a given organization, whose prospects for advancement are controlled by the firm, and is less subject to external market forces than are positions recruited from the outside. The dual and internal labor market perspectives are linked by the requirement that firms in either type of market

must be large in order to support an internal labor market or realize the advantages of being part of the core (Stolzenberg, 1978).

These perspectives on labor markets alert us to the possibility that opportunities for earnings differ according to employment segment, but they do not furnish guidance on how to define these segments for college graduates. One hallmark of core firms, for example, is their ability to hire personnel with good educational credentials. By that criterion, all college graduates are eligible for entry to core firms. Similarly, the necessity for firms with internal labor markets to be large does not limit opportunities for college graduates because most work for large organizations.

The early 1960s were a time of economic growth and expanding opportunity. Wages and salaries increased dramatically during the period. Private profit-making corporations were most likely to respond to market developments of this kind. Particularly if they were large, organizations in the profit-making sector should have been leading in the competition for the relatively scarce supply of college graduates and therefore should have paid better than other types of organizations. The federal government was a major force in the expansion of the economy. The space program, the war on poverty, and other initiatives expanded employment opportunities for college graduates not only directly but also indirectly through the expenditure of public funds to private contractors. As a result, agencies in the governmental sector, particularly federal ones, should have paid relatively high salaries to college graduates.

A third major type of employer open to college graduates in the 1960s lay in the nonprofit sector. Included here are elementary and secondary schools, hospitals, colleges and universities, churches, and welfare organizations. Whether public or private, these organizations, although expanding because of the increase in population associated with the baby boom, were not able to increase employees' salaries in the early 1960s at the same rate as the other two sectors. Since men were likely to work in the profit-making sector and women in the nonprofit sector, this variable should help to account for salary differences between men and women.

The general conception guiding this research is that the determination of earnings is a process. For a cohort of college graduates, the relevant process is that of career development. Components of that process include not only advanced education and work experience but also parental background, considered as a starting point, characteristics of the college and of the student during college, and life-cycle-related contingencies occurring before and after graduation.

THE SAMPLE OF COLLEGE GRADUATES

The data analyzed here were generated by the NORC longitudinal

survey of the college graduating class of 1961. Five waves of data were collected using self-administered questionnaires in 1961, 1962, 1963, 1964, and 1968. The first wave of the study was carried out in the spring of 1961, when the respondents were college seniors. Of 41,116 eligible persons, 86 percent returned usable questionnaires; by 1964, response had declined to 59 percent. Since no major nonresponse biases were detected through 1964 (Davis, 1964a; Spaeth and Ellis, 1969), the fifth wave was a 30-percent sample of respondents who had returned all four prior questionnaires (50 percent of the original sample). Response to the fifth wave was 81 percent.

A two-stage sample was used, with prospective graduates sampled from 135 colleges and universities drawn roughly proportional to the number of PhDs awarded to earlier graduating classes or the number of entrants to medical or dental schools. This procedure resulted in an oversample of large schools, which has been adjusted by assigning appropriate weights to graduates of smaller schools. For further details on the sample, see Davis (1964b). All estimators in this analysis are based on weighted data, but all tests of significance are based on unweighted Ns.

Only data for white respondents are reported here because too few members of other races were available for separate analysis. Since whites comprised over 95 percent of the entire class of '61, these results provide an accurate picture of the earnings of the entire class. Of the 4,868 (unweighted) respondents in 1968, 4,638 were white; of these, 2,953 were men and 1,685 were women. The actual Ns used in the analysis are smaller than these figures because persons with no earnings in a particular year have been excluded from the analysis for that year. Since the number excluded differs from year to year, it will be reported in the initial table for each specific analysis.

MODELS OF EARNINGS

Data on the earnings of these 1961 college graduates are available for the years 1962, 1964, and 1968, i.e., the first, third, and seventh years after graduation. Guided by the theoretical perspectives outlined above, models of the determination of earnings are constructed for each of the three years separately.

The variables generated by the theoretical perspectives and the availability of data from five longitudinal waves make any model of the process of earnings determination quite complicated. Table 1 summarizes some of the intricacies of this analysis by cross-tabulating the types of variables to be used against their causal order. The columns of the table define major stages in the process of earnings determination. For the variables in any column, all variables in columns to the left are assumed to be causes and all variables to the right are assumed to be effects. In this report, only earnings are analyzed as dependent variables. The block-recursive structure of this model allows earnings for one period to be influenced by earnings in earlier periods. Thus,

TABLE 1

TYPES OF VARIABLES USED IN MODELS OF EARNINGS: WHITE COLLEGE GRADUATES, CLASS OF 1961

Type of variable	Pre-college	College	Senior year	1962 Independent	1962 Dependent	1963 Independent	1964 Independent	1964 Dependent	1964-68 Independent	1968 Independent	1968 Dependent
Parental SES	Father's education Mother's education Family income Father's occupation										
Academic performance		Selectivity GPA									
Age			Age at graduation								
Family status			Marital status Children	Marital status Children			Marital status Children			Marital status Children	
Occupational and educational qualifications				Employment Enrollment		Employment Enrollment	Job experience Employment Enrollment Highest degree		Enrollment 1964-68	Job experience Employment Enrollment Highest degree	
Work characteristics			Employer type expected	Employer type Occupation			Employer type Occupation Employer size			Employer type Occupation	
Motives			Money Ambition	Money Ambition			Money Ambition			Money Ambition	
Dependent					Earnings			Earnings			Earnings

models of earnings for each of the three relevant years (1962, 1964, and 1968) can be described in Table 1.

Each column of the table defines major blocks of variables. Each row lists particular variables, which are grouped into types as defined by the broader stub column items. The cell entries of the table fall into two major groups: those that describe variables pertaining to periods prior to and during college and those that refer to periods beginning with the senior year and continuing to 1968. Because parental SES and college academic performance refer to the years prior to graduation, only one set of measurements for each of these types is needed. Such variable types as family status, occupational and educational qualifications, and work characteristics may change from one year to the next; therefore, repeated measures of these variables are used. All the repeated variables were measured in the years denoted by the column headings. Some of the nonrepeated variables were measured contemporaneously and some retrospectively. For further details on this matter, see the next section, which deals with measurement.

With the organization of Table 1 in mind, we can turn to a discussion of the principles underlying the specification of the earnings models to be estimated. Three separate analyses of earnings are reported, one for each of the years in which earnings data are available: 1962, 1964, and 1968. These models are block recursive: Where the direction of causation can be determined, it is assumed to run in one direction only; reciprocal paths of causation are not allowed. Blocks are defined according to two criteria: (1) the time period to which a variable pertains, defined by the column headings in Table 1, and (2) the relationships between variables within time periods. In terms of the columns of Table 1, causal direction is always assumed to run from left to right, never from right to left. Within columns, the causal direction between blocks runs from top to bottom and not from bottom to top.

Thus, parental SES is assumed to influence all variables to its right, but the four indicators are not assumed to influence each other--they form a single block. Earnings in 1962 are influenced by all variables in columns to its left but by no variables to its right. The 1968 measures of motives are influenced by all variables above them in their column and by all variables to the left of that column. They, in turn, influence only 1968 earnings.

The block-recursive specification of earnings models is important because such a specification provides estimates of the total effects of the independent variables. The total effects of a variable are estimated by its coefficient in a regression equation that includes all variables in its block but no variables in later blocks. Thus, the total effects of the parental SES variables are estimated by the coefficients in the regression equation including the four parental variables and no others. The total effects of 1962 earnings on 1968 earnings are estimated with all variables to the left of 1962 earnings included in a regression equation along with 1962 earnings. None of the

variables to the right of 1962 earnings is taken into account in the assessment of total effects.

Total effects must be distinguished from direct effects. The direct effects of 1962 earnings on 1968 earnings are estimated in a regression equation that includes all variables in Table 1, not just those to the left of 1962 earnings. The total effects of a variable estimate its total causal effects within a given model. The direct effects of a variable estimate its importance as a predictor of the independent variable. This analysis will include both total and direct effects.

The importance of the specification of causal ordering in defining total effects requires some justification of that specification. The measures of parental SES refer to the period in respondents' lives before they entered college. Thus, these four variables clearly precede any of the others in Table 1. The effects of father's and mother's education, parental family income, and father's occupation are estimated separately because each of these variables may have different effects. In particular, there is evidence suggesting that parental family income may have a direct effect on earnings, whereas the other variables may not (Duncan et al., 1972; Sewell and Hauser, 1975).

Selectivity and grade point average (GPA), which pertain to the four years of college, are entered in the next block of regressors. These variables not only are surrogates for mental ability, a measure of which is not available in this data set, but are also of interest in their own right. In particular, quality of schooling, which is tapped by selectivity, has been thought to affect earnings. These data provide an opportunity for further testing of this hypothesis.

The next block of variables contains the only exception to the rule that variables to the left of other variables in Table 1 are assumed to cause those to their right. Age at graduation, senior marital status, and presence of children in the senior year are entered in one block. This exception is justified by the interpretation given to age at graduation. Results of the analysis suggest that, at least for men, age at graduation is a surrogate for labor force experience. That is, men who had graduated from college at ages over 22 earned more in 1962 than did the younger men, who presumably had not interrupted their educational careers. The benefit of age at graduation is interpreted as owing to pregraduation work experience, even though an unknown, but presumably small, proportion of men had been in military service prior to graduation. Since military experience has been found to have virtually no effect on the earnings of men in a cross section of the total population (Griliches and Mason, 1972), it is unlikely that prior experience in the military would increase the earnings of male college graduates.

As an indicator of interruption in the educational career, age at graduation must be interpreted differently for women than for men. In the early 1960s, a woman was more likely to have interrupted her schooling for child bearing than for work, and absence from the labor

force and from school clearly does not increase a woman's earnings capacity (Polachek, 1977). Putting the senior-year family status variables in the same block as age at graduation strengthens the interpretation of age at graduation as a measure of work experience for women by at least partly taking into account the major activity competing with work--family formation.

Beginning with the family-status variables, most of the variables were repeated in all five waves of the study. The time of their measurement is indicated in the column headings. Therefore, temporal order determines causal order for all columns including and to the right of the one headed "Senior year." In all cases involving repeated variables, the state at time 1 is taken to be a cause, along with other variables, of the state at time 2. Time 1 states of a given variable are also taken to be causes of time 2 states of other variables.

Within columns, the problem of causal ordering is much more problematic, and a principle other than temporal ordering must be applied. The principle used here gives highest priority to the most general kind of information and lowest to the most specific. Variables are ordered by type and go from family status to occupational and educational qualifications, work characteristics, and motives. Marital status and children are general in the sense that they can influence a variety of life situations other than work and earnings. Employment, enrollment, and job experience are considered as occupational and educational qualifications applicable to any job. Work characteristics such as employer type and occupation, on the other hand, are more specific, since they apply to the job at which one is currently working. Motives apply to the person and thus are the most specific. Furthermore, compared to the other variables, the measures of motives available in this data set are somewhat subjective, as the discussion in the measurement section shows. The extent to which motives influence earnings is an important issue, but measures of motives should not be allowed to distort estimates of the effects of the other variables. Introducing motives last within a temporal block minimizes such distortion.

Because it contains the most complete set of variables available for a given time period, the column headed "1964 Independent" is used to exemplify the definition of blocks within a time period.

The first set of variables within a temporal block is marital status and children, which are included in these models for two reasons. First, they are potent predictors of women's labor force participation (Spitze and Spaeth, 1979). Although all persons in this analysis were employed, extent of employment clearly influenced earnings, and women with some family responsibilities might be more likely to work part time. Second, employers might expect women with family responsibilities to have relatively weak commitment to employment. If so, they might pay married women less than others (Malkiel and Malkiel, 1973). Following a similar logic, employers might expect a man with a wife and children to be highly committed to employment. If so, the earnings of these men

might be high. Thus, the effects of family status would be opposite for men and women.

The next block contains variables pertaining to occupational and educational qualifications. Labor force experience is a well-known determinant of earnings. As a surrogate for on-the-job training, it is one of the most important indicators of human capital formation (Becker, 1975; Mincer, 1974). Experience that is relevant to one's job is a particularly important determinant of earnings (Griffin, 1978; Spaeth, 1976a). The indicator of experience used in this analysis refers to experience on one's current job, which is presumably a highly relevant form of experience.

Amount of employment in a given year is an obvious determinant of earnings. The more hours one works, the more one will be paid. This variable needs to be included in models of earnings in order to avoid biasing coefficients for other variables; if employment were omitted, some of its effects might be attributed to other variables. Furthermore, employment in one year is an indicator of experience in that year and, as such, is an influence on earnings in later years.

Another important determinant of earnings is education. In cross-sectional samples of the general public, education is usually measured by the number of years of schooling completed. In a longitudinal sample of college graduates, a population highly selected on education, the dollar returns to an additional year of schooling cease to be a paramount issue. The NORC data allow us to analyze the influence of enrollment in a single year on earnings in that year. We start with this obvious but important fact: In any given year, time spent in schooling cannot be spent at work. As a consequence, the more time one spends in school, the lower one's earnings should be. Thus, there is a short-run earnings penalty attached to schooling (Lazear, 1977). In longitudinal data, this fact is a way of measuring the opportunity costs of schooling (Mincer, 1974).

Furthermore, work experience and educational experience are negatively related, even in population cross sections (Griffin, 1978). In the seven years covered by this study, these variables should be particularly incompatible. If this is the case, one will suppress the effects of the other. Unless both experience and schooling are included in models of earnings, the effects of the one variable that is included will be underestimated.

Finally, the number of years of schooling may not be as important for a college graduate as the possession of a degree beyond the bachelor's. The highest degree earned is therefore also included in the occupational-educational block of variables.

The repeated variables discussed so far refer to either persons' family situations or general qualifications applicable to any job and to schooling. The next block of variables describes some important aspects of the job itself. The first of these is type of employer. For this

analysis, employers are grouped into three types: (1) private profit-making firms, (2) governmental agencies, and (3) nonprofit organizations. The theoretical roots of the employer types are in the literature on segmented labor markets, a major theme of which is that certain types of employers are free to pay high wages, whereas others are not. Core firms and those with internal labor markets are large organizations in oligopolistic industries and, as such, are not immediately subject to the vagaries of the market (Averitt, 1968; Doeringer and Piore, 1971). It is a virtual necessity that a firm with an internal labor market be large. Otherwise, it would not have the resources to support the kind of differentiated labor force that comprises an internal market. The larger a firm, the higher the salaries that it should be able to pay (Spaeth, 1976a; Stolzenberg, 1978). The only year for which employer size was ascertained was 1964, and regression equations for earnings in that year include this variable.

Another important work characteristic is the occupation that a person is in. Analyses of socioeconomic achievement have shown that occupational status or prestige is an important determinant of earnings (Duncan et al., 1972; Sewell and Hauser, 1975; Spaeth, 1976a). In this cohort, occupational status was only weakly related to earnings, presumably because professions with the highest status, such as medicine, law, and dentistry, also have long training periods. As a result, even by seven years after graduation, persons in such occupations were at early, and therefore low, points on their earnings trajectories. Nevertheless, certain occupations had higher earnings than others. A set of dummy variables was created to tap the relationship of occupation to earnings. Two main criteria were used to group variables coded into 1950 U.S. Census categories: There must be sufficient numbers of men and women in each group to provide stable estimates, and between-occupation variance in earnings should be, at least crudely, maximized.

Even though these criteria were empirical, the resultant groupings of occupations make considerable theoretical sense. Professional, technical, and kindred occupations were divided into three categories: traditionally masculine professions, with high earnings; traditionally feminine professions, with low earnings; and school teachers, whose earnings were average for women and low for men. Managerial occupations formed a group of their own, with earnings ranked below those of the masculine professions. The remaining occupations formed the last group; most workers in this group were in clerical or sales occupations.

Because the work characteristics apply to the job actually held in a given year, earnings models for one year omit work characteristics for preceding years. An attempt to include earlier work characteristics would create potentially severe missing data problems that could only be "solved" by carrying out analyses on persons employed in all three years for which earnings data are available. Omission of earlier work characteristics allows the analyses to be carried out on all persons with nonzero earnings in a particular year.

Although one might expect motivation to be a potent determinant of earnings, the little research that has been done on this issue has not found motives to have a large impact (Duncan and Morgan, 1976; Jencks and Rainwater, 1977). Because the NORC study was not designed with the intention of assessing the determinants of earnings, the data on motives are somewhat scanty. Two possible measures are available, however, and form a separate block. The first of these measures is provided by the answer to a question on the importance of "making a lot of money" when choosing an occupation. The second measure has been derived from a list of self-descriptive adjectives. All such adjectives describing ambition have been combined into a scale measuring that concept.

As with work characteristics, earlier measures of motives are not carried over as influences on earnings in later years. Preliminary analysis of the effects of motives quickly revealed them to be rather weak. On the grounds that one of the problems with such ad hoc measures might be unreliability, responses for one year were combined with those from earlier years. Thus, in 1964 measured importance of money was derived from a combination of responses in 1961, 1962, and 1964. The 1964 measure of ambition was created in a similar fashion, as were the indicators of motives pertaining to 1968. In order to avoid using the same measure of motivation more than once in the same equation, only the summed measures are used in the equations for 1964 and 1968 earnings, with the indicators of motives specific to those years not entered in the equations.

Although this discussion has pertained only to the determinants of earnings in the column headed "1964 Independent," its applicability to most other columns should be clear. Only two sets of the variables mentioned in Table 1 remain to be discussed. The first of these is the single variable in the column headed "1964-1968 Independent." This variable measures the amount of enrollment, in years, from spring 1964 through spring 1968. Inclusion of this variable along with earlier indicators of enrollment provides a reasonably complete summary of a person's enrollment in graduate or professional school from the first year out of college to the seventh.

The final set of variables in Table 1 is earnings. Measures of earnings are available for 1962, 1964, and 1968. The 1968 variable is the ultimate dependent variable in this analysis. Although earnings are listed in Table 1 as dependent variables, 1962 and 1964 earnings are both dependent and independent. A potentially important but heretofore unmeasured determinant of earnings is earnings capacity--"the power to increase future earnings by investment in oneself" (Hause, 1972:S109). This concept refers not to measured mental ability but to a difference in schedules of marginal rates of return on human capital investments. It would be impossible to operationalize such a variable in a cross-sectional study because it would be tautologically confounded with actual earnings. This problem is avoided here by using earnings in one year as a determinant of earnings in later years. It must be recognized, however, that dollar earnings are only a surrogate for differences in marginal rates of return, but they should be a good one.

MEASUREMENT

This section describes the ways in which the variables discussed above were measured. All items used are presented in the Appendix, which reproduces the questions from the various waves with the codes shown in the SPSS Archive File format to which they were transformed for this project.

Questions are treated in this section according to the order of the variables listed in the first column of Table 2. They are identified by wave and question number in the table, with letters assigned to each wave as follows: A, 1961; B, 1962; C, 1963; D, 1964, and E, 1968. Thus, the question on marital status asked in the senior year is A51, 1962 marital status is B2, etc.

Parental Socioeconomic Status

The four questions used to assess parental SES were all standard survey items. Father's and mother's education used response categories describing educational stages--"part high school," "high school graduate," and "graduate or professional degree beyond the bacheior's." These categories have been converted to years of schooling according to the scheme shown in the Appendix. Parental family income was also a categorical question converted to numerical values (hundreds of dollars per year).

The three questions just mentioned appeared in the senior-year (1961) questionnaire. Data on father's occupation were taken from the 1962 questionnaire, which asked open-ended questions on father's and own occupation in sufficient detail for coding into 1950 U.S. Census categories. Since the groups into which these detailed categories were aggregated into dummy variables were the same for 1962, 1964, and 1968, they will all be discussed here.

Detailed census categories were used to divide professional, technical, and kindred workers into three groups: "high-paying" professions, "low-paying" professions, and school teaching. The high category contained most professions dominated by men. Included were accountants, draftsmen, natural and social scientists, architects, lawyers, physicians, college professors, and engineers. The low category contained most traditionally female professions and most women with below-average earnings. Included here were actors, artists, musicians, teachers of art and music, dietitians, social workers, nurses, librarians, and medical and other technicians. School teaching was simply the census category "Teachers (nec)." The remaining census occupations were divided into two groups: management--all management, proprietors, and officials; and "other"--the remaining occupations, most of which were clerical or sales in this sample. Generally speaking, these five occupational groups ranked from high to low in earnings as follows: high-paying professions, management, school teaching, low-paying professions, "other."

TABLE 2

MEASURES OF VARIABLES USED IN MODELS OF EARNINGS, BY WAVE:
WHITE COLLEGE GRADUATES, CLASS OF 1961
(Wave and Question Number)

Variable	1961 (Senior year)	1962	1963	1964	1968
Father's education	A56				
Mother's education	A56				
Parental family income	A58				
Father's occupation		B24			
Selectivity[a]					
GPA	A45				
Age at graduation					E43
Marital status	A51	B2		D2	E44
Children	A51[b]	B2A[c]		D2B[c]	E45A[c]
Job experience				D14	E27
Employment		B8[d]	C1[d]	D12[e]	E28[e]
Enrollment		B29	C18	D35	E24
Highest degree		B6		D6B	E22
Employer type	A25[f]	B12		D17	E31A
Occupation		B13		D16	E29
Employer size				D18A	
Importance of money	A29	B20		D75	E32A
Ambition	A62	B52		D90	
Earnings		B57		D108	E42

[a]No question on selectivity was asked; based on college characteristics (see Astin, 1965).

[b]Presence of children.

[c]Number of children.

[d]Full-time vs. part-time work.

[e]Average number of hours worked per week.

[f]Employer expected when respondents begin work in their full-time careers.

Characteristics of Colleges and Seniors

The indicator of college quality used in this analysis is Astin's (1965) selectivity, which corresponds roughly to the average intellectual ability of freshmen in a given college. It was unnecessary to ask a question to ascertain this information because in the sampling design, colleges were the primary sampling units. A selectivity score was simply assigned to all graduates of a given college.

GPA was scored on a 10-point scale ranging from 0 for D or lower to 9 for A. The construct validity of this item was reasonably high. Its distribution closely approximated the normal curve. It was a strong predictor of graduate or professional enrollment, and its correlation with selectivity was virtually zero, as it should have been if grading was done on the curve.

Age at graduation was derived from the 1968 questionnaire, which asked for respondent's year of birth. It was calculated by subtracting year of birth from 1968.

Family Status

The questionnaire for each year asked for information on the respondents' family status. In 1961, a single question combined marital status with the presence or absence of children. Two dummy variables were created from this question. Persons who were currently married were scored 1 and the remainder 0 to create a marital status dummy. The widowed, divorced, and separated were treated as unmarried in each wave because there were too few of them to form a separate variable and because they presumably had to rely on their own employment in order to support themselves. Questions from 1962, 1964, and 1968 yielded marital status dummy variables comparable to that for 1961. In 1961, there were sufficient data to yield only a dummy variable for the presence (1) or absence (0) of children. Because the questionnaire permitted only the married to report that they had children, all unmarried respondents were scored 0 on this variable. The 1962 questionnaire contained an additional item on number of children, which allowed categorical replies with a maximum of "four or more," given by 1.3 percent of the sample and scored 4. The 1964 question was the same as the 1962 one. By that time, only 1.9 percent of the sample chose the "four or more" category, so it continued to be scored 4. In 1968, an open question was asked, and the answers were recorded as a number.

Postgraduate Activities

The 1964 and 1968 questionnaires contained items asking when respondents began working on their present jobs. The categorical responses in the 1964 question were converted to months. In 1968, an open-ended question asked for the year in which the person started to

work on his or her present job; this number was subtracted from 1968 to yield the number of years of experience in the current job.

Data on labor force participation yielded dummy variables in 1962 and 1963. In 1962, a single question asked whether respondents were employed full time, part time, or not at all. A full-time dummy variable was scored 1 if they worked full time and 0 otherwise; a part-time dummy was created by scoring 1 for part-time employment. The 1963 question presented a list of current activities from which respondents were to choose the ones applicable to them. Responses were combined appropriately to make full- and part-time dummy variables.

In 1964 and 1968, respondents were asked the average number of hours worked per week on their "present job." Numbers were recorded as given. Inspection of the frequency distributions of these items showed that a few of the answers were implausibly high, and preliminary analysis indicated that such answers were not systematically related to earnings. As a result, all responses greater than 60 hours per week have been dropped from the analysis. (See Mosteller and Tukey, 1977, for a discussion of the effects of outliers in regression analysis.)

In every wave but the first, questions inquired about the extent to which respondents were enrolled for education beyond the bachelor's degree. Although these questions were different in each wave, all but the last attempted to ascertain the proportion of a full-time course load that respondents were carrying. Thus, in 1962 a single question asked what proportion of a full-time course load the respondents were carrying. In 1963 and 1964, a similar question was asked for each academic-year term in which a respondent could have been enrolled--fall or spring for schools on semester systems; and fall, winter, or spring for those on quarter systems. In 1968, respondents were merely asked whether they were enrolled in a degree program, and a dummy variable was created.

Because the activities open to persons earning advanced degrees were quite diverse, answer categories in 1962-64 did not always indicate the proportion of full-time enrollment. An artificial scale of enrollment was constructed by regressing a 1968 question on the number of years spent full time in graduate or professional degree programs on the response categories. In 1962, when the question did not distinguish between terms, the regression results were simply converted into proportions of full-time enrollment. In 1963 and 1964, each semester represented one-half an academic year and each quarter one-third. Regressions were performed for each term separately, proportions of full-time enrollment were calculated, and the results were then added together appropriately to create a single figure for an academic year (see the Appendix for the original question). Finally, the estimates for 1962, 1963, and 1964 were converted into years, summed, and subtracted from the 1968 question on total enrollment. The result was an estimate of the extent of enrollment (in years) between 1964 and 1968.

In spring 1962, only 1.5 percent of all respondents had earned a

degree beyond the bachelor's, a percentage too small to permit assessing the influence of a higher degree on earnings. In 1964, 11 percent had earned a degree beyond the bachelor's, and a dummy variable scored 1 for holding a degree beyond the bachelor's and 0 for a bachelor's degree was created. In 1968, 20 percent held master's degrees, 9 percent professional degrees, and 4 percent doctoral degrees. A dummy variable was created for each of these three types of degrees.

Questions on type of employer were asked in all years, and those from all but 1963 are used in this analysis. Since respondents were still in college in 1961, the question for that year referred to "your most likely employer when you begin full time work in your anticipated career field." Questions pertaining to later years referred to respondents' actual employers. Successive years tended to produce additional employer categories. Since these were primarily elaborations of earlier categories, the 1961 question will be used here to demonstrate the principles underlying the creation of the three dummy variables for private profit-making firms, governmental agencies, and nonprofit organizations. Persons saying in 1961 that they intended to work for private companies or a family business or to be self-employed were scored 1 on the profit-making dummy variable. Those saying that they intended to work for federal, state, or local government received a 1 on the governmental dummy. Those saying that they intended to work for a research organization; a college, junior college, or university; an "other" educational institution; or a hospital, church, clinic, or welfare organization were scored 1 on the nonprofit dummy. Partly from indecision and partly because certain organizations could fall into more than one category--schools are agencies of local government, for example--the dummy variables were not mutually exclusive. A priority system was applied to combinations of the dummies in order to make them mutually exclusive. Thus, if a type of employer falling within the profit-making sector was named, respondents were treated as falling in that sector regardless of any other types of organizations named. If a nonprofit organization was named and a profit-making one was not, respondents were assigned to the nonprofit sector. Respondents were treated as working for governmental agencies only if they did not name a different employer type. Thus, school teachers, social workers, nurses, etc., were treated as working for nonprofit employers whether they were working for a governmental agency or not. Questions on actual employer for 1962, 1964, and 1968 were treated analagously to that for 1961.

In 1962, 1964, and 1968, an open question on the respondent's present occupation was asked and coded into 1950 census categories. These categories were combined to form dummy variables corresponding to those for father's occupation.

The 1964 questionnaire included an item on the size of the respondents' employing organizations and of the "same plant or office" in which they worked. Categories for the size of the entire organization were assigned numerical values, the natural logarithms of which were used in the analysis (see Stolzenberg, 1978, for reasons for preferring logarithms to absolute numbers). Since differences in employer

size are one reason for expecting differences in earnings by employer type, it is unfortunate that size is not available for the other waves.

A question that included an item on the importance to the respondent of "making a lot of money" was included in 1961, 1962, 1964, and 1968. Responses are available as dummy variables for each of those waves. Since such single-item attitudinal responses can be unreliable, items for a given wave were combined with those from earlier ones to make composite scales. Thus, a 3-point scale indicating interest in money was made by summing responses from 1961, 1962, and 1964. A similar 4-point scale was made for 1968 from responses in that year and the three earlier ones.

Lists of adjectives describing personality traits appeared in the 1961, 1962, and 1964 questionnaires. The entire lists were factored to reveal clusters of items tapping such traits as ambition, optimism, and a negative self-image. For this analysis, the ambition items were formed into a series of scales, with one for each year in which the list of items appeared. Typical items in these scales were ambitious, aggressive, and hard driving." As a check on the validity of these self-reports, certain items were factored across waves. Items from the same cluster loaded more highly together across time than contemporaneous ones from different clusters. Within any year, the score on ambition was simply the number of items indicative of ambition endorsed by a respondent. In order to increase the reliability of these scales, those from 1961, 1962, and 1964 were summed and divided by 3, yielding a metric tapping the average number of items per year that a response indicative of ambition was chosen.

Finally, we turn to the measurement of earnings themselves. In 1962 and 1964, categorical questions were asked on monthly earnings. Categories were assigned numerical scores corresponding to dollar amounts, and these scores are used in the analysis. In 1968, an open-ended question asked for annual earnings in thousands of dollars per year. Since responses to this question were numerical, they are used as such. However, a few respondents gave extremely high answers to this question, and preliminary analysis indicated that these responses behaved in a basically random manner. As a result, only respondents who reported earnings of $25,000 or less are included in the analysis that follows.

RESULTS

The general strategy of this analysis is to estimate separate models of earnings for the three years in which data are available: 1962, 1964, and 1968. A separate section will be devoted to earnings in each year. In order to lay the groundwork for the regression analysis, each section will begin with a discussion of the means of the variables entering the analysis. In some cases, such as for the earnings variables themselves, these data will be of interest in their own right.

In others, they will establish differences between men and women that can have substantial impact on their earnings.

Earnings in 1962

As the means in Table 3 indicate, the women in the class of '61 came from slightly more advantaged backgrounds than did the men. Parents of women graduates averaged over one-half year more schooling than did parents of men graduates; women's parental family income was over $1,000 greater. Sex differences in the father's occupational dummy variables were, on the whole, slight. The fathers of women graduates were about 5 percent more likely to work in high-paying professions and about 10 percent less likely to work in "other" occupations. Parents apparently tended to make somewhat greater sacrifices to get their sons into and out of college than their daughters.

The nearly equal scores on selectivity indicate that neither sex had an advantage with regard to the quality of college attended. Women, on the other hand, had somewhat higher grade point averages than men. The women's GPAs were between B- and B, whereas the men's were between C+ and B-.

The mean age at graduation for men was nearly a year greater than for women. This difference in means actually understates the rate at which men and women completed their education with no substantial interruptions. Fifty-three percent of the men had graduated at age 22 or younger compared with 82 percent of the women. This difference had important consequences for 1962 earnings.

Mostly as a result of the age difference, 32 percent of the men and only 16 percent of the women were married in their senior year (1961). By 1962, these figures had increased to 52 and 39 percent, respectively. In 1961, 21 percent of the men and 7 percent of the women had at least one child. In 1962, the mean number of children was .55 for men and .23 for women.

Table 3 shows that men and women had the same likelihood of reporting that they worked full time in 1962, with about 90 percent of each group doing so. When the question on graduate enrollment is transformed to represent a percentage of full-time enrollment, the mean for men becomes 19 percent and that for women is 11 percent.

Turning to employer type, we can see from Table 3 that expected employer differed markedly by sex in 1961, with 60 percent of the men and only 14 percent of the women expecting to work for private profit-making employers in their anticipated careers. This is clearly a substantial difference, and since profit-making employers paid better than others, women would have had quite an earnings disadvantage if these plans were realized. For the most part they were: 41 percent of the men and only 15 percent of the women worked for profit-making employers in 1962.

TABLE 3

MEANS AND STANDARD DEVIATIONS OF VARIABLES IN ANALYSIS OF 1962 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Variable	Means		Standard deviations	
	Men (N=2141)	Women (N=1104)	Men	Women
Father's education	12.0390	12.8321	3.1865	3.4133
Mother's education	12.0167	12.7471	2.5934	2.7182
Parental family income	89.1788	101.6102	50.9539	56.8536
Father's occupation				
High-paying profession	.1228	.1749	.3282	.3799
Management	.3062	.3373	.4610	.4729
School teaching	.0117	.0233	.1074	.1508
Low-paying profession	.0324	.0337	.1770	.1805
Other	.5270	.4308	.4993	.4953
Selectivity	54.6120	54.4130	9.1361	8.1558
GPA	4.7144	5.3813	1.4045	1.4690
Age at graduation	23.9991	23.1288	3.6733	4.9901
Marital status				
1961	.3153	.1550	.4647	.3620
1962	.5154	.3888	.4998	.4876
Presence of children, 1961	.2080	.0738	.4059	.2615
Number of children, 1962	.5456	.2338	.9071	.6473
Work full time, 1962	.8966	.9005	.3046	.2994
Enrollment, 1962	19.4762	10.8840	34.8577	25.5788
Employer type expected, 1961				
Profit-making	.5957	.1390	.4908	.3460
Government	.1040	.0757	.3053	.2646
Nonprofit	.3003	.7857	.4584	.4103
Employer type, 1962				
Profit-making	.4074	.1495	.4914	.3566
Government	.2889	.1136	.4533	.3174
Nonprofit	.3037	.7369	.4599	.4403

(Table 3 continued)

TABLE 3--Continued

Variable	Means		Standard deviations	
	Men (N=2141)	Women (N=1104)	Men	Women
Occupation, 1962				
High-paying profession	.3034	.0905	.4598	.2870
Management	.1037	.0300	.3049	.1780
School teaching	.1802	.5549	.3844	.4971
Low-paying profession	.0833	.1903	.2764	.3926
Other	.3294	.1342	.4701	.3410
Imporatnce of money, 1961	.3115	.1308	.4632	.3373
Ambition, 1961	1.2759	1.1242	1.1694	1.0843
Importance of money, 1962	.3546	.1619	.4785	.3684
Ambition, 1962	1.0017	.7570	.9321	.8540
Earnings, 1962	424.3690	377.3006	184.8026	128.0203

The sex differences in distributions of the dummy variables for the occupation actually held in 1962 show considerable occupational segregation by sex. Over half of the women (55 percent) were school teachers, compared with only 18 percent of the men. In addition, 11 percent more women than men were in low-paying professions, a category that includes most traditionally female occupations other than school teaching. Men were somewhat more likely to be managers, by 10 percent to 3 percent. On the other hand, men were much more likely than women to be in the "other" occupations (33 and 13 percent, respectively).

In both 1961 and 1962, men were substantially more likely to report wanting an occupation with opportunities for "making a lot of money." The difference in the probability was nearly .2 in both years. Men were also more likely to score high on the ambition scale, with the difference between the sexes being greater in 1962 then in 1961.

Finally, Table 3 shows that men's earnings were greater than women's in the first year after graduation. Men averaged about $425 a month, compared with the women's average of about $375. This difference amounted to about $565 a year in 1962 dollars.

We may sum up these differences between the sexes by noting which characteristics should have increased the earnings of each sex. Characteristics favoring men included age at graduation, marital status, number of children, employment in a profit-making organization, being in a high-paying occupation, wanting to make money, and being ambitious. Characteristics favoring women included parental SES, grades, and enrollment. Characteristics favoring neither sex were college selectivity and full-time employment.

The model for this analysis is a block-recursive one with the order of blocks determined by the temporal order of each set of variables. See Table 1 for a complete specification of variable ordering. Presentations of regression results will follow this ordering, starting with the earliest variables and ending with the most recent. Each coefficient estimates the <u>total</u> effect of a variable, and therefore each coefficient (except the last ones) comes from a reduced-form equation appropriate for estimating the effect of a certain variable net of all earlier variables in the model.

Several of the relationships to be estimated here are expected to be curvilinear. Thus, if age at graduation behaves like a standard measure of experience, the effects of this variable should be appreciable and positive at first but should taper off or even decline in later years. Current enrollment could have minimal effects at low levels and substantial deleterious effects at levels high enough to interfere with employment.

A curvilinear relationship can be estimated by squaring the values of an independent variable and including the squared values as an additional variable in a regression equation. Thus, the curvilinear relationship between 1962 earnings and age at graduation would be estimated

by the following equation:

$$Y = a + b_1A + b_2A^2,$$

where Y is estimated earnings, A is age at graduation, and A^2 is age squared. For men this equation is $Y = -393.889 + 43.636A - .388A2$; for women it is $Y = 343.234 + 1.010A + .019A^2$. The relationship for men shows relatively rapid (and nearly linear) growth to about age 40, slower growth to age 50, and virtual stability to the maximum value (in this sample) of 60. That the relationship is curvilinear is shown by the statistical significance ($p < .001$) of the squared term. The relationship for women, on the other hand, is linear and virtually nil. Returns to experience were quite slight for women but essentially the same regardless of level of experience.

The interpretation of curvilinear relationships is more complex than that of linear ones. If a relationship is curvilinear, the slope of the line describing it differs at each point along that line. Therefore, a single regression coefficient is incapable of describing the relationship. Complete evaluation of a curvilinear relationship would require that it be assessed at each point along the line. Furthermore, the effects of the independent variable are not directly given by the coefficients of the regression equation that includes the squared term. The total equation describes the relationship, but the coefficients must be evaluated before they will tell us what that relationship is. It is nevertheless possible to produce estimates of the effects of a variable at a certain point by the expression $b^1 + 2b^2A$, which is the partial derivative of A with respect to Y. (See Stolzenberg, 1978, for a discussion of this and other aspects of curvilinear relationships.) Thus, at age 24 (the mean for men), the effect of age at graduation was such that a year's additional experience produced an increment of $25 per month for a man and $1.90 for a woman. At age 40, the zero-order effects of age at graduation were $12.60 for men and $2.50 for women; at age 50, they were $4.80 for men and $2.90 for women.

Most curved lines have at least one point at which the estimated values of the dependent variable are at either a maximum or a minimum. At that point, the slope is zero, and it approximates zero at nearby points. In this neighborhood, the effects of the independent variable are virtually nil. Thus, even though the standard error of the squared term is used to assess whether that term is necessary, the standard error is not applicable to the effects of the independent variable at any given point along the line.

Since the analysis for 1962 is based on 2,141 men and 1,104 women, all variables with any linear importance will have regression coefficients significant at the .01 level or better. The standardized coefficients highlight the importance of variables with large linear effects and the importance of curvilinear variables at the points at which they were evaluated.

We may now turn to an assessment of the impact of parental SES on

1962 earnings. As Table 4 shows, these effects were far from large, and several of them were in directions not predicted by current theory. A year of father's education, for example, decreased a male's monthly earnings by $7 but had no effect on a female's earnings. Mother's education lowered the earnings of both males and females, by $5 and $6, respectively. Family income and father's occupation had no effect on the earnings of either sex. More important than the fact that parental SES had such negligible effects on earnings is the fact that the effects which did exist tended to be negative.

Results for parental SES are weak and contradictory because the population in this study consisted of college graduates. Even in the general population, the effects of parental income are weak, net of schooling, and the effects of other variables are indirect (Duncan et al., 1972; Sewell and Hauser, 1975). That the effects are weaker still among college graduates may stem from the superior access to rewarding occupations given by college graduation. Surveys of the general population rarely use as detailed a control for education as that present when studying only young persons, all of whom have graduated from college.

Even though parental characteristics provided the graduates virtually no head start, some senior-year characteristics contributed to their earnings. Table 4 contains estimates of the effects of a set of variables, each of which characterized the graduates before they left college. The first of these, selectivity, is a measure of the quality of the undergraduate college attended (Astin, 1965). Economists and others interested in assessing the effects of the quality of education maintain that graduation from a high-quality college should place a person in a better position to reap the financial rewards offered by a bachelor's degree (Taubman and Wales, 1974). Contrary to this expectation, the effects of selectivity among these graduates were negative for both sexes. GPA was one of the characteristics where means for women were higher than those for men. Despite this fact, having good grades was a modest advantage for a man but not for a woman.

As noted earlier, men tended to be older than women at graduation. This finding argues that a fair number of men had returned to college and graduated after they had already gained some experience in the labor market. To the extent that these men were already in relatively highly paid occupations, they would tend to remain in them; and they would report larger earnings than younger men or women with little or no job experience. As Table 4 shows, the effect of age at graduation was substantial among men and trivial among women; a year of age increased men's earnings by $15 a month. Although the zero-order relationship between age at graduation and 1962 earnings is curvilinear, the relationship net of family status and earlier variables is not. Therefore, only a linear relationship has been estimated here.

In order to ascertain what might have happened to the men and women who graduated from college more or less on schedule--i.e., those with little or no prior job experience--mean earnings were computed for

TABLE 4

TOTAL EFFECTS ON 1962 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Father's education	-7.0467**	-1.1837	-.122	-.032
Mother's education	-4.7520	-6.1185*	-.067	-.130
Parental family income	- .0678	.1761	-.019	.078
Father's occupation				
High-paying profession	-3.3147	9.4706	-.006	.028
Management	.1038	.4428	.000	.002
Low-paying profession	-13.1761	-14.6516	-.013	-.021
Other	-19.7382	18.2493	-.053	.071
Constant/R^2	583.5620**	443.4116**	.027	.026
Selectivity	-.4664	-.9712	-.023	-.062
GPA	9.5362*	2.5491	.072	.029
Constant/R^2	556.5682**	467.0855**	.033	.031
Age at graduation	15.3340**	2.2716	.305	.089
Marital status, 1961	29.6056	-8.7645	.074	-.025
Presence of children, 1961	53.7987**	-21.9945	.118	-.045
Constant/R^2	49.5296	401.8055**	.192	.036
Employer type expected, 1961				
Profit-making	60.0141**	-13.8073	.159	-.037
Government	36.5253*	-26.0865	.060	-.054
Importance of money, 1961	13.7537	14.9409	.034	.039
Ambition, 1961	6.3113	2.1133	.040	.018
Constant/R^2	36.4456	395.0214**	.217	.041
Marital status, 1962	41.6107**	-28.0988*	.113	-.107
Number of children, 1962	7.6837	-4.6779	.038	-.024
Constant/R^2	13.7698	410.5232**	.226	.051

(Table 4 continued)

TABLE 4--Continued

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Work full time, 1962	173.3310**	191.8762**	.286	.449
Enrollment, 1962				
15% course load	1.8924	.6686	.357	.134
50% course load	-.1390	-.2729	-.026	-.055
75% course load	-1.5899	-.9455	-.299	-.189
Constant/R^2	-191.5299**	159.6393*	.326	.252
Employer type, 1962				
Profit-making	61.5073**	12.7429	.164	.035
Government	-52.5382	34.0806*	-.129	.084
Occupation, 1962				
High-paying profession	60.5125**	15.7162	.151	.035
Management	34.9588	11.4711	.058	.015
Low-paying profession	7.4820	3.4639	.011	.011
Other	-51.8760**	-49.2662**	-.132	-.131
Constant/R^2	-115.7893	180.6617**	.479	.274
Importance of money, 1962	16.7543	1.5517	.043	.004
Ambition, 1962	3.0422	9.8758	.015	.066
Constant/R^2	-121.1796	180.7915**	.481	.277

*p < .01.

**p < .001.

men and women who were 23 years old or younger. The original earnings gap between men and women virtually disappeared. Mean earnings for the "on schedule" men were $384, compared with $375 for the women. The difference between the means failed to reach significance at the .05 level. If men and women went straight to college, did not drop out, and took a job immediately after graduation, their starting salaries were essentially the same.

In the 1960s, employers apparently acted on the stereotype that a wife and children had stabilizing effects on a man and that a husband and children competed with a woman's loyalty. At least, Table 4 shows that married men had greater earnings than single men, by about $30 a month. The coefficient for women is negative, but it is not statistically significant. Being a parent was also an advantage for a man (over $50) but not for a woman; again, the women's coefficient is negative but not significant.

One purpose of this analysis was to assess the effects of motivational factors on earnings. Several variables tapping these matters were measured prior to graduation as well as later. Included were the type of employer expected, the importance of "making a lot of money," and an index of self-rated ambition.

The type of employer expected "when you begin full-time work in your anticipated career field" had a substantial influence on later earnings. For men, expecting to work for a profit-making employer was worth $60 more per month than expecting to work for a nonprofit employer, and expecting to work for a government agency was associated with an increment of $37. Such expectations bore no significant relationship to the 1962 earnings of women.

In the first year out of college, the effects of the two motivational variables were trivial for both sexes.

The senior-year situations of graduates represented a considerable advantage for a man but had little effect among women. The coefficient of determination (R^2) representing the effects of the college situation and earlier variables is .217 for men and only .041 for women. Most of this difference stemmed from the greater experience of the men; but marital status and parenthood also helped men, whereas they did not increase the earnings of women.

Next we turn to the variables in Table 4 pertaining to the influence of graduates' 1962 situtations on their earnings. Since many of the variables discussed here have senior-year counterparts, we reap one of the benefits of dealing with longitudinal data. For example, the effects of 1962 marital status are assessed net of those of senior marital status. Thus, the coefficient for the 1962 variable represents the effect on 1962 earnings of getting married after graduation.

Marriage between spring 1961 and spring 1962 was an advantage for men and a disadvantage for women. Marriage was worth $42 to a man, but

it cost a woman $28 a month. The difference between men's and women's coefficients is significant at the .001 level. Since age at graduation and earlier marital status are controlled in this analysis, we may conclude that getting married entailed financial rewards for men and penalties for women. Number of children, on the other hand, had no effect on the earnings of either sex.

None of the variables discussed so far has been an important influence on the earnings of women. Men, on the other hand, received substantial benefits from prior work experience and modest benefits from marital status and from expecting to work for profit-making or governmental employers.

As the literature on earnings has consistently shown, the extent of labor force participation is an important determinant of earnings. Since it is no revelation to learn that earnings increase with the time spent working, our attention focuses on differences between men and women in returns to working full versus part time. Full-time work was worth $173 to a man and $192 to a woman.

Human capital theory suggests, and at least one researcher (Lazear, 1977) has found, that participation in schooling represents real dollar costs. These costs are in addition to the fact that time spent in schooling cannot be spent working and earning. That is, the hourly wage of students should be less than that of other workers even when the factors causing some persons to undertake schooling and others to enter the labor force are taken into account. These data offer at least a partial test of this theory, since they include a control for whether respondents were working full or part time. The relationship between enrollment in graduate or professional school and earnings is curvilinear. Given a commitment to studies corresponding to 15 percent of a full-time load, an additional percentage point of enrollment produced nearly $2.00 for men and $0.70 for women. At 75 percent of a full course load, a percentage point increase lowered a man's earnings by $1.60 and a woman's by $1.00.

Turning to characteristics of the jobs held by graduates in 1962, we see from Table 4 that a man's choice of employer had important consequences for his earnings. Other things being equal, working for a profit-making employer increased a man's monthly earnings by $62, but working for a government agency decreased them by $53. Since the omitted employer classification is nonprofit organizations, working for such an organization produced about average earnings for a man in 1962.

Findings for women are in sharp contrast to those for men. Working for governmental employers paid better than working for nonprofit employers, but working for profit-making organizations had no effect on women's earnings. The difference between men and women in the regression coefficients for profit-making employers is significant at the .01 level, and the difference for government employers is significant at the .001 level. One interpretation of the sex difference in the influence of employer type on earnings is that, even for the same type

of employers, men and women did different kinds of work, which were differentially rewarded. Especially in the profit-making sector, women could have been secretaries and sales clerks, whereas men were presumably engineers, wholesale salesmen, or management trainees. If so, men and women would have been paid different amounts even if they had been working for the same type of employer.

Occupation in 1962 was a modest influence on the earnings of men and a slight one on the earnings of women. Men in high-paying professions, such as accounting and engineering, made $61 more per month than men in school teaching, the omitted category. Men in management made $35 more, and those in "other" occupations, including clerical and sales, made $52 less. For women, only being in an "other" occupation affected earnings. Women in such occupations made $49 less than those in school teaching.

Finally, Table 4 shows that the motivational variables had trivial effects for both sexes. These small effects may have resulted for one of three reasons: (1) Professed ambition and the importance of money may have been basically unrelated to earnings; (2) one year after college graduation may have been too early in the career for these motivational variables to have much of an effect; or (3) the measures available in this data set are not valid indicators of the motivations that really influence earnings.

The final R^2s in Table 4 show that the complete model explains 48.1 percent of the variance in the 1962 earnings of men, compared with only 27.7 percent of the variance in the 1962 earnings of women. With the exception of full-time work, the unstandardized effects of important variables are smaller for women than for men. This state of affairs is vividly illustrated in Table 5, which shows the direct effects of variables with coefficients significant at the .01 level for one or both sexes.

The salient feature of Table 5 can be recapitulated rather easily. The effects of most variables pertaining to the college years or earlier are insignificant or small. Since many of the earlier variables had 1962 counterparts, the effects of the earlier variables were indirect through their later counterparts. Among men, the metric coefficient for grades showed direct effects that were about the same size as the total effects (cf. Table 4). The remaining variables with substantial effects for men included working for a profit-making employer, working for a government agency, and working full time. Only the latter was a substantial benefit for a woman.

Earnings in 1964

Before discussing the determination of earnings in 1964, it is important to note that limiting the analysis to respondents with nonzero earnings in a given year means that the analysis of 1964 earnings includes a different segment of this cohort of college graduates than did

TABLE 5

DIRECT EFFECTS OF SIGNIFICANT VARIABLES ON 1962 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Grade point average	10.2496**	8.7990**	.078	.101
Employer type expected, 1961				
Profit-making	12.2783	-6.8119	.033	-.018
Government	51.1688**	-23.4828	.085	-.049
Marital status, 1962	35.0154**	-18.4629	.095	-.070
Number of children, 1962	32.8662**	11.3208	.161	.057
Work full time, 1962	176.8079**	182.5378**	.291	.427
Enrollment, 1962				
15% course load	1.4286	.6375	.269	.127
50% course load	-.2987	-.1696	-.056	-.034
75% course load	-1.5325	-.7461	-.289	-.149
Employer type, 1962				
Profit-making	66.5766**	15.6533	.177	.044
Government	-52.1182**	32.7176*	-.128	.081
Occupation, 1962				
High-paying profession	63.0671**	10.1769	.157	.023
Management	38.9895**	5.6273	.064	.008
Low-paying profession	10.5436	3.0433	.016	.009
Other	-53.6572**	-52.0108**	-.136	-.139
Constant/R^2	147.5524**	170.2885**	.425	.258

*p < .01.

**p < .001.

the analysis of 1962 earnings. Anyone who had not entered the labor force by spring 1962 but who had done so by spring 1964 is included in the 1964 but not in the 1962 analysis. Table 6, which gives means and standard deviations for variables measured after 1962 and those that differed between 1962 and 1964, makes this point clearly.

Thus, approximately 80 percent of respondents with earnings in 1964 had worked full time in 1962, and 7 percent had worked part time. About 12 percent had not worked at all and were therefore omitted from the analysis of 1962 earnings. At the same time, among those who were employed in 1962, 92 percent worked full time.

Compatible with the fact that certain 1964 earners had not worked at all in 1962 was the fact that the range of graduate or professional enrollment in 1962 was higher for those with 1964 earnings than for those with 1962 earnings. Table 6 shows that the mean 1962 enrollment for 1964 male earners was 25 percent of a full-time course load, compared with 19 percent for the 1962 earners (Table 3). For women the figure was 17 percent, compared with 11 percent. Thus, we can see that some respondents who had been studying full time in 1962 had entered the labor force by 1964.

The rate of working full time among 1964 earners was down in 1963. Of those working in 1963, 77 percent of the men and 74 percent of the women were working full time; 19 percent of the men and 15 percent of the women were not working at all. The extent of enrollment in 1963 was the same as that in 1962.

It would be unwise to treat as trends any of the temporal differences discussed so far. They are as likely to reflect changes in the composition of earners in 1962 and 1964 as they are to show developments in the same people over time.

In 1964, men were more likely than women to be married and to have children. These differences reflect the greater age at graduation of males.

Table 6 shows that on two measures of experience, men and women were virtually identical. Each had about 23 months of experience on their current jobs. Since almost 36 months had intervened since their graduation, many respondents had apparently held more than one job or had started working after a period of advanced schooling or other non-work activities. The mean work week for men was slightly longer than for women, 42 hours compared with 37, but a large majority of both sexes was obviously working full time in 1964.

As in 1962, men were much more likely to work for profit-making organizations (50 percent for men and 13 percent for women) and slightly more likely to work for a state, local, or federal government agency (16 percent and 11 percent, respectively). More women were in low-paying professions (18 percent for women and 7 percent for men); fewer were in high-paying professions (9 and 39 percent) and management (3 and 19

TABLE 6

MEANS AND STANDARD DEVIATIONS OF VARIABLES MEASURED AFTER 1962 AND EARLY VARIABLES THAT DIFFERED FROM 1962 LEVELS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Variable	Means		Standard deviations	
	Men (N=1904)	Women (N=872)	Men	Women
Employment, 1962				
Full time	.8184	.8048	.3856	.3965
Part time	.0754	.0657	.2640	.2479
Not employed	.1062	.1295	.3081	.3358
Enrollment, 1962	25.4397	17.0055	38.8308	32.7844
Employment, 1963				
Full time	.6187	.5969	.4858	.4906
Part time	.1889	.2496	.3915	.4329
Not employed	.1924	.1535	.3942	.3605
Enrollment, 1963	24.4678	16.6044	33.5767	26.1397
Marital status, 1964	.6910	.5556	.4621	.4970
Number of children, 1964	.9080	.2985	1.1168	.7096
Job experience, 1964	23.0898	22.4556	11.9717	11.6549
Employment, 1964	42.2305	37.9409	9.0923	10.2954
Enrollment, 1964	16.4740	10.0652	30.2792	22.8426
Highest degree, 1964	.1350	.0924	.3418	.2897
Employer type, 1964				
Profit-making	.4976	.1296	.5001	.3360
Government	.1561	.1107	.3630	.3138
Nonprofit	.3463	.7597	.4758	.4273
Occupation, 1964				
High-paying profession	.3932	.0938	.4885	.2916
Management	.1875	.0334	.3903	.1796
School teaching	.2020	.5768	.4015	.4941
Low-paying profession	.0729	.1850	.2600	.3884
Other	.1444	.1110	.3516	.3142
Employer size, 1964	1728.5867	1051.2436	1565.9102	1300.3754
Importance of money (summed)	1.0649	.4228	1.1129	.7642
Ambition (summed)	1.2858	.9431	.9462	.8067
Earnings, 1964	576.5259	416.1921	192.0132	137.2219

percent). About as many women (11 percent) as men (14 percent) were in "other" occupations. Whatever the current returns to occupation, management and the high-paying professions are eventually the most lucrative occupations for college graduates. In 1964, 58 percent of the men and only 13 percent of the women were in these occcupations.

Furthermore, the occupational distribution of women was almost the same in 1964 as in 1962, but the men's distribution had changed considerably. The percentage in "other" occupations decreased from 33 to 14 for men; that in management increased from 10 to 19 and in high-paying professions from 30 to 39. In terms of potential long-run earnings, men experienced considerable upward mobility from 1962 to 1964, while women experienced none.

Men worked for substantially larger organizations than women in 1964--about 1,730 employees for the former, compared with about 1,050 for the latter. Since Stolzenberg (1978) has shown that earnings are higher in larger organizations, this difference is an earnings advantage for the men.

Men were also more likely than women to indicate that "making a lot of money" was important to them and to receive high scores on the ambition scale. In an effort to capture the maximum effect of these characteristics, Table 6 shows the means for the summary indices that were constructed by combining responses from 1961, 1962, and 1964, as described earlier.

The most important difference between 1962 and 1964 was in earnings themselves. In 1964, men earned an average of $577 per month compared with $424 (among those with nonzero earnings) in 1962. The increase in men's earnings was $153 per month, or $1,836 per year. Women's earnings, on the other hand, increased from $377 in 1962 to $416 in 1964, which was only a $39 monthly increase, or $468 per year. As a result, the earnings gap between the sexes increased from $47 a month in 1962 to $161 a month, or over $1,900 a year, in 1964.

Among graduates aged 22 or under, the earnings gap had increased to $100 a month in 1964 from virtually nothing in 1962. Even though starting salaries did not vary much by sex, men were much more able to capitalize on experience and other assets than were women.

For the most part, the male advantage in 1964 earnings did not stem from the pregraduation period. As Table 7 shows, the effects of parental SES were contradictory for men and negligible for women. Having a highly educated father was a modest disadvantage for a man, but coming from a relatively affluent family was an offsetting advantage. The standardized coefficient of .124 is comparable to other estimates of the influence of family income on earnings (Sewell and Hauser, 1975). Among men, the coefficient of determination showing the combined effects of the parental SES variables is .031; among women, it is .005.

Turning to the college and senior-year variables, we see from

TABLE 7

TOTAL EFFECTS ON 1964 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Father's education	-9.8021**	.2325	-.162	.006
Mother's education	-1.8501	-1.5882	-.025	-.032
Parental family income	.4789**	.1104	.124	.046
Father's occupation				
High-paying profession	36.8642	23.7786	.061	.067
Management	-4.7998	7.1134	-.012	.025
Low-paying profession	-43.9610	8.4317	-.042	.012
Other	-25.8211	22.9960	-.067	.083
Constant/R^2	686.3646**	405.5877**	.031	.005
Selectivity	1.3804*	.2653	.065	.016
GPA	12.9186**	11.7063**	.096	.126
Constant/R^2	564.0452**	328.6119**	.045	.021
Age at graduation	9.1203**	3.4333**	.183	.138
Marital status, 1961	24.8718	-78.6856**	.061	-.209
Presence of children, 1961	43.3123*	22.9999	.094	.047
Constant/R^2	243.2045**	231.1908**	.117	.054
Employer type expected, 1961				
Profit-making	116.3542**	-6.0074	.298	-.015
Government	107.1047**	35.1942	.165	.067
Constant/R^2	245.4781**	232.3274**	.187	.059
Marital status, 1962	25.3573	-38.7004*	.066	-.133
Number of children, 1962	24.0228*	-16.4409	.116	-.080
Constant/R^2	230.4401**	265.9209**	.196	.073

(Table 7 continued)

TABLE 7--Continued

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Employment, 1962				
Full time	86.6858**	114.7344**	.1741	.332
Part time	-59.0517*	13.5704	-.081	.025
Enrollment, 1962	.1698	.7189**	.034	.172
Constant/R^2	136.7297	144.8756	.238	.139
Earnings, 1962	.4104**	.2684**	.57	.335
Constant/R^2	305.0360**	145.6464	.333	.190
Employment, 1963				
Full time	43.7050**	135.9480**	.111	.486
Part time	12.7444	92.5132**	.026	.292
Enrollment, 1963	-.5471*	.7823**	-.096	.149
Constant/R^2	257.5384**	62.3683	.348	.289
Marital status, 1964	31.1530*	-3.8837	.075	-.014
Number of children, 1964	-3.7018	-37.7737*	-.022	-.195
Constant/R^2	254.0132**	70.6382	.350	.298
Job experience, 1964	1.0988**	.8554	.069	.073
Employment, 1964				
30 hours	6.6993	5.4406	.317	.408
40 hours	2.9602	2.2694	.140	.170
50 hours	-1.5014	-.9019	-.071	-.068
Enrollment, 1964	-.9265**	-.0158	-.146	-.003
Highest degree, 1964	87.5395	58.9049**	.156	.124
Constant/R^2	-169.5260*	-220.7572**	.466	.468

(Table 7 continued)

TABLE 7--Continued

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Employer type, 1964				
Profit-making	45.2968**	12.3621	.118	.030
Government	56.2425**	17.1513	.106	.039
Occupation, 1964				
High-paying profession	73.4523**	54.5030**	.187	.116
Management	44.6175*	-4.5745	.091	-.006
Low-paying profession	3.4262	-13.8689	.005	-.039
Other	6.0863	-55.8654**	.011	-.128
Employer size, 1964	8.0869**	7.6547**	.085	.100
Constant/R^2	-140.0162	-198.1252	.513	.509
Importance of money (summed)	7.4209	22.0842**	.043	.123
Ambition (summed)	19.7855**	2.8410	.097	.017
Constant/R^2	-181.3065*	-199.2981**	.523	.523

*p < .01.

**p < .001.

Table 7 that selectivity was a slight advantage for men but none at all for women. Good grades were a modest, and roughly equal, advantage for both sexes. Being older at graduation was an advantage for both sexes, but a much greater advantage for men than for women; the difference in the coefficients is significant at the .001 level. Being married when they graduated had no influence on the 1964 earnings of men, but having children increased them slightly. For women, on the other hand, marriage at graduation was a handicap, costing them nearly $80 a month. Parenthood did not have a significant effect on the earnings of women.

As in 1962, the effects of 1961 expectations of working for a profit-making employer were substantial for a man ($116) but not significant for a woman. The effects of anticipating governmental employment were also substantial for men ($107); they were much less for women ($35). Both sets of sex differences in coefficients for expected employer are significant at the .001 level.

The entire set of pregraduation variables explains 18.7 percent of the variance in 1964 earnings among men and 5.9 percent among women. For men, the most important variables were the expectation of working for a profit-making or governmental organization and age at graduation. The two most important variables for women were 1961 marital status--being married was a handicap--and age at graduation.

As with the senior-year variables, being married in 1962 was an earnings handicap for a woman but not for a man. Having children, on the other hand, was an advantage for a man but not a statistically significant disadvantage for a woman.

Working full time in 1962 was worth $115 to a woman and $87 to a man in 1964. Working part time in 1962, on the other hand, had no effect on the 1964 earnings of women and cost a man nearly $60. Enrollment in 1962 was an advantage for women in 1964 but not for men. Ten percentage points of 1962 enrollment were worth $7 to a woman.

Since the variables discussed so far in connection with 1964 earnings pertain to past characteristics or activities, they all tap experience in one form or another. Some experiences, such as marriage and parenthood, had no direct relevance to earnings, even though they did have an effect. Others, such as schooling, can be considered as investments calculated to increase earnings; and others, such as extent of labor force participation, represent the kind of on-the job training presumed by human capital theory to be beneficial to earnings. Such variables explain 23.8 percent of the variance in the 1964 earnings of men and 13.9 percent of the variance in the 1964 earnings of women.

Economists have attempted to assess the effects of a variable called "ability" or "earnings capacity" (Becker, 1975). Ability does not refer here to intellectual ability of the kind measured by IQ tests but to the ability specifically to maximize one's earnings. Clearly, if someone has a great deal of ability for making money, that person should

have high earnings. Economists have tended to treat this matter tautologically: Persons who make a lot of money have great earnings capacity. This assumption may be valid, but it is of little use in an empirical assessment of the importance of earnings capacity on earnings.

Because the data reported here are longitudinal, we may use the economists' assumption to make an empirical assessment of the role of earnings capacity as a determinant of earnings. If earnings were to be independently measured at two points in time, the economists' assumption would justify taking the first measurement as an indicator of earnings capacity. The independent measurement would make the empirical analysis nontautological.

The richness of the NORC data set also lends persuasiveness to the interpretation of earlier earnings as a measure of earnings capacity. Although only surrogates for academic ability are available, other determinants of earnings are available in abundance. Considered as a set, the determinants already assessed have strong effects. Since the effects of 1962 earnings are estimated net of these earlier determinants, we may argue that using prior earnings as a measure of earnings capacity is probably a valid procedure.

In fact, 1962 earnings were a reasonably strong determinant of 1964 earnings. As Table 7 shows, $100 a month in 1962 was worth $41 a month for men in 1964; the same amount was worth $27 for women. The difference in coefficients is significant at the .001 level. Considering that these coefficients are net of all earlier variables, the effects of prior earnings are quite strong. With 1962 earnings added to the earlier regressors, 33.3 percent of the variance is explained for men and 19.0 percent for women.

Although the 1963 questionnaire was quite short and therefore omitted important information (including earnings), it did contain information on experience. Respondents reported whether they worked full time, part time, or not at all; and they provided detailed information on enrollment. Table 7 indicates that working full time in 1963 was a substantial advantage for a woman in 1964 but only a modest advantage for a man. Full-time work experience in 1963 was worth $136 in 1964 earnings to a woman and only $44 to a man. Working part time in 1963 had a nonsignificant effect on a man's 1964 earnings but a large and significant one on a woman's earnings (nearly $100). Subtracting the part-time from the full-time coefficients shows that, compared to working part time, working full time benefited a woman by about $45 and a man by about $30.

Enrollment in 1963 was a slight cost to a man and a modest advantage to a woman. One interpretation of these findings is that enrollment was interpreted by employers of the men as evidence of commitment to an activity other than one's current employment, whereas the women's employers interpreted this behavior as evidence of commitment to an activity other than raising a family, the chief activity competing with work. That is, men taking graduate or professional training may have

been preparing for jobs other than the ones that they currently held. Women doing the same may have been upgrading their preparation for their current jobs.

Despite the fact that none of the independent variables discussed so far pertains to the graduates' 1964 employment situations, their effects on earnings were quite strong. This set of variables explains 34.8 percent of the variance among men and 28.9 percent of the variance among women. Of the 1962 variables, earnings were most important for men, followed by expecting a profit-making employer and employment. Among women, earnings and employment were quite important, enrollment was of some importance, and other variables were relatively unimportant. Employment in 1963 was quite important for women but less important for men.

Certain of the 1964 situational variables were less important than their earlier counterparts. Table 7 shows that getting married between 1962 and 1964 benefited a man by $31 in 1964, a relatively small amount. Getting married in that interval was not related to a woman's earnings in 1964. The number of children in 1964 reduced the earnings of women by $38 per child; children had no effect on the 1964 earnings of men.

Although among the general population experience on specific jobs is more important than unrelated experience (Griffin, 1978; Spaeth, 1976a), this variable had only a slight influence for both sexes in 1964. Of course, the coefficients for this variable were net of measures of general job experience for 1962 and 1963. Presumably this experience is not irrelevant among recent college graduates. For many respondents, the earlier experience measures reflected experience on their current jobs. Nevertheless, the smallness of the effect of specific experience is somewhat surprising.

Amount of working, on the other hand, was quite important for both sexes. At 30 hours per week, the effects of this variable were substantial; an additional hour worked provided about $7.00 to men and about $5.50 to women. At higher levels (40 hours), an additional hour worked had a much smaller effect ($2-$3). At still higher levels (50 hours), the effect was essentially nil. Enrollment in 1964 cost a man nearly $10 for every 10 points added to the course load; enrollment had no effects on the 1964 earnings of women.

The literature has, of course, been quite concerned with the pecuniary (and nonpecuniary) value of higher education in general and degrees in particular. Our data on college graduates have established that continued schooling was a disadvantage over the short run for the men. Since data for enrollment are available for each postbaccalaureate year from 1962 to 1964, and since the appropriate variables have been entered in the regression equations, we are in a position to assess the effects of a process about which much interest has been shown--certification. This data set contains rather detailed information on amount of schooling. With amount of schooling controlled, the coefficients for actual higher degrees held estimate the benefit accruing to the degree

and not to the education that produced it. Of course, the spring of 1964 was only three years after graduation, and the returns to degree holding may not yet have been felt. Furthermore, only 15 percent of the men and 11 percent of the women had earned higher degrees by 1964; over 80 percent of these were master's degrees. Even this degree should have been useful to many of the graduates who were working in 1964. About half of the employed women were school teachers, and master's degrees are rewarded in the formal pay schedules of most teachers. Nearly half of the men worked for profit-making employers, and the MBA has been shown to be a good investment (Agnello and Hunt, 1976).

A higher degree by 1964 was worth $88 a month to a man and $59 to a woman. These amounts are by no means trivial, since they amount to about $1,050 a year for a man and about $700 for a woman.

Together with earlier variables, those pertaining to 1964 family status, education, and labor force participation explain 46.6 percent of the variance in men's earnings and 46.8 percent of the variance in women's earnings in 1964. Important variables for men were the number of hours worked (if they were working less than full time) and enrollment at higher levels. For women, only the number of hours worked--again at low levels--was important.

Finally, we turn to the job situations and motivations of the sample. Working for a profit-making employer increased men's 1964 earnings by $45 a month but had no effect on women's earnings. Men working in government were $56 better off than those working for nonprofit organizations. Women in government employment, on the other hand, were not paid significantly more than women in nonprofit organizations. Working in high-paying professions increased a man's earnings by $73 (compared to school teaching) and a woman's by $55. A management occupation increased a man's earnings by $45 but had no effect on a woman's. Working in "other" occupations decreased a woman's earnings by $56 but had no effect on a man's earnings.

Working for large organizations was an advantage for both sexes. The reason why size of employer should have beneficial effects is reasonably clear. The larger the employing organization, the more resources it has and therefore the higher salaries it can afford to pay. For theoretical reasons (see Stolzenberg, 1978), this variable is expressed in units of the natural logarithm of number of employees. The coefficients state the effects that a 1 percent increase in organizational size has on earnings. Such an increase raised 1964 earnings by $8 for both men and women.

The measures of motivation presented here have been chosen to maximize the effects of these variables. On the grounds that consistency in giving responses indicative of the importance of money or ambition showed greater commitment to these goals, responses to these items from 1961, 1962, and 1964 were summed, as described previously. The importance of money had no effects among men and modest ones among

women. The effects of ambition, on the other hand, produced greater advantages for men than for women.

One of the noteworthy facts about the determinants of 1964 earnings is the great influence of variables pertaining to earlier years. All regressors explain 52.3 percent of the variance for both men and women. Variables pertaining to the senior year in college or earlier explain 18.7 percent of the variance among men and only 5.9 percent among women. When 1962 variables are added, 33.3 percent of the variance among men and 19.0 percent among women are explained. The addition of 1963 employment and enrollment increases the coefficients of determination to 34.8 percent for men and 28.9 percent for women--thus accounting for nearly 7/10 and 3/5 of the total variance explained.

The importance of early characteristics and decisions is also reflected in the direct effects of significant variables, as shown in Table 8. Of the 24 independent variables that had significant effects for one or both sexes, 9 pertain to years earlier than 1964. In some ways, this state of affairs is surprising because it means that later variables did not completely interpret the effects of their earlier counterparts.

Of the earlier variables, family income and father's education had slight but contradictory effects among men. Working in 1962 depressed men's earnings somewhat but women's only a little. Earnings for 1962 paid off in 1964 for both sexes, although the payoff was greater for men. Full-time or part-time work in 1963 was an advantage for women; returns to men for full-time work were significant but small.

Note that the amount of experience on the current job had only slight direct effects for either sex. Presumably earlier experience was relevant to the current job, and this experience washed out the effects of current experience.

At low levels short of full-time work (30 hours per week), an additional hour of work was a benefit for both sexes, producing gains of over $6.00 for men and $5.00 for women. At a level corresponding to full-time work (40 hours), an additional hour worked increased men's earnings by over $3.00 and women's by over $2.00. At high levels (50 hours) returns were virtually nil.

Enrollment during 1964 was a slight handicap for a man and was neither an advantage nor a disadvantage for a woman. Holding a higher degree in 1964 (usually a master's) benefited a man by about $75 a month and a woman by about $55. Whatever the costs of current enrollment and the benefits of earlier enrollment, the possession of an advanced degree was a distinct benefit.

Working for a profit-making organization was some advantage for a man ($45) but not for a woman. Working for a government agency paid a man more than working for a nonprofit one by nearly $60 but had no influence on a woman's earnings. Men in high-paying professions made

TABLE 8

DIRECT EFFECTS OF SIGNIFICANT VARIABLES ON 1964 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Father's education	-3.4887*	-.2526	-.058	-.006
Family income	.3872**	.1520	.100	.063
GPA	10.3039**	6.1267*	.077	.066
Employment, 1962				
Full time	-94.1811**	-34.1034	-.189	-.099
Part time	-89.7762**	-28.9913	-.123	-.052
Earnings, 1962	.3594**	.2235**	.400	.279
Employment, 1963				
Full time	38.9737**	74.0293**	.099	.264
Part time	14.8759	50.1487**	.030	.158
Enrollment, 1963	.0851	.5857**	.015	.111
Job experience, 1964	1.0751**	1.0324*	.067	.088
Employment, 1964				
30 hours	6.2982	5.0341	.298	.378
40 hours	3.1550	2.1563	.149	.162
50 hours	.0120	-.7215	.001	-.054
Enrollment, 1964	-.8002**	-.0411	-.126	-.007
Highest degree, 1964	72.9104**	56.2554**	.130	.119
Employer type, 1964				
Profit-making	45.4398**	1.9967	.118	.005
Government	59.2607**	12.0281	.112	.028
Occupation, 1964				
High-paying profession	84.9045**	63.3323**	.216	.133
Management	50.5446**	6.6496	.103	.009
Low-paying profession	13.8508	-14.7326	.019	-.042
Other	8.4822	-50.6171**	.016	-.116
Employer size, 1964	8.9327**	6.8416**	.094	.090
Importance of money (summed)	5.8014	21.5664**	.034	.120
Ambition (summed)	19.9163**	3.9753	.098	.023
Constant/R^2	-114.3745*	-120.0780**	.509	.514

*p < .01.

**p < .001.

$85 more than men in school teaching; women in these professions made over $60 more than women in school teaching. The earnings advantage for men in management was about $50; no such advantage existed for women in management. Women in "other" occupations made $51 less than school teachers, whereas men in these occupations had earnings about equal to those of male school teachers. Size of employer (expressed in logarithms) was a modest advantage for both sexes. Wanting to make money produced modest increases in the earnings of women, as did high levels of ambition in the earnings of men.

So far, we have examined the impact of situational, employment, and motivational variables on the earnings of each sex. One of the most important facts that we have discovered is that in 1964 men earned $160 per month, or $1,920 per year, more than women (Table 6). To what extent do the results already discussed account for this gap?

A technique for using regression results to decompose earnings gaps has been developed by Blinder (1973). This technique divides differences into three components: (1) differences in the composition of the two groups, (2) differences in the regression coefficients, and (3) the difference between the regression constants. For example, men were much more likely than women to work for profit-making employers, an advantage for men because such employers paid more on the average than others. Thus, a difference in employment composition between the two sexes increased men's earnings relative to women's. Profit-making employers also paid men more than women; that is, working for a profit-making employer yielded greater returns to men than to women. This advantage for men is shown by differences in the regression coefficients. Finally, of course, a regression equation for men and one for women will each contain a constant term. The difference between the constants indicates the extent to which the two regression equations do not explain the earnings gap between the two sexes. This difference is known as a "shift" coefficient.

The total earnings gap is thus decomposed into three mutually exclusive components: differences due to composition, those due to the influences of independent variables as estimated by the regression coefficients, and unexplained differences, given by the shift coefficient.

Table 9 decomposes the male-female earnings gap according to the variables shown in Table 8. The column totals tell us that of the $160 per month gap, $155 is explained. Most of the gap ($94) is accounted for by composition; that is, the net earnings advantage of men was more the result of their being in situations that paid better on the average than of their ability to capitalize on such situations.

The results, however, are really more complicated than this. The reason that the total for composition is so large is that women were unlikely to be in advantageous situations. The total for the coefficients column is lower because earnings returns to certain variables actually conferred advantages to women that offset some of the returns advantages accruing to men.

TABLE 9

DECOMPOSITION OF 1964 MALE-FEMALE EARNINGS GAP USING VARIABLES WITH SIGNIFICANT DIRECT EFFECTS: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Composition	Coefficients	Total
Father's education	3.0408	-41.4719	-38.4312
Parental family income	-5.1892	23.7376	18.5484
GPA	-6.7039	22.6362	15.8759
Employment, 1962	(-2.1517)	(-52.3441)	(-54.4958)
Full time	-1.2809	-48.3505	-49.6314
Part time	-.8708	-3.9936	-4.8644
Earnings, 1962	21.9720	47.3410	69.3130
Employment, 1963	(-.0534)	(-29.7288)	(-29.7822)
Full time	.8496	-20.9247	-20.0751
Part time	-.9030	-8.8041	-9.7071
Enrollment, 1963	.6692	-8.3122	-7.6430
Job experience, 1964	.6818	.9589	1.6407
Hours worked, 1964	17.0638	57.5847	74.6485
Enrollment, 1964	-5.1283	-7.6405	-12.7688
Highest degree, 1964	3.1060	1.5389	4.6449
Employer type, 1964	(19.4122)	(10.8588)	(30.2712)
Profit-making	16.7218	5.6302	22.3521
Government	2.6904	5.2286	7.9191
Occupation, 1964	(31.9299)	(15.3980)	(47.3280)
High-paying profession	25.4204	2.1173	27.5377
Management	7.7889	1.4661	9.2550
Low-paying profession	-1.5527	5.2879	3.7353
Other	.2733	6.5267	6.8000
Employer size, 1964	4.8773	12.1311	17.0084
Importance of money (summed)	3.7251	-6.6654	-2.9404
Ambition (summed)	6.8253	15.0340	21.8593
Total	94.0205	61.0564	155.0769

Shift = $a_m - a_f$ = -114.3745 - (-120.0780) = 5.7035

Gap = Total + Shift = 160.7804

Thus, prior work experience benefited women more than men. Other things being equal, the earnings gap would have been $48 greater if women had not received greater returns to working full time in 1962. Working in 1963 yielded an additional benefit of $30. Offsetting these benefits to women, men's returns to 1962 earnings were greater than women's, and the fact that men earned more than women in 1962 increased the former's 1964 earnings by $22. The greater returns to a man's 1962 earnings contributed another $47, so the total advantage to a man in 1964 from 1962 earnings was $69. Employer differences accounted for $30 of the earnings gap, and occupational differences accounted for an additional $47.

Earnings in 1968

We now turn to the most recent data available on the earnings of this cohort of 1961 college graduates, their earnings in 1968, seven years after graduation. One of the most noteworthy developments between 1964 and 1968 was the exodus of many women from the labor force. As we shall see, this exodus stemmed from progress in family formation by the women who graduated from college on schedule. Table 10 gives means for working men and for working and nonworking women.

Age at graduation was the same for working men and women, but nonworking women were more than a year and a half younger than either of the other two groups. In fact, 9 percent of the working women were 30 or over, compared with only 2 percent of those who were not working (not shown in table). Thus, working women were as likely as men to have suffered delays in schooling.

Both groups of women were less likely than men to have been married at graduation, but the women who worked in 1968 were nearly three times as likely to have had a child at graduation as those who were not working. In 1962, the women who were working in 1968 were much less likely than the nonworkers to have been married. Although mean family size in 1962 was small for both groups of women, it was about 1.5 times as large for workers as for nonworkers.

By 1964, 84 percent of the nonworking women in 1968 were married, compared with 51 percent of the working women and 64 percent of the men. The nonworking women had nearly as many children as the men and nearly twice as many as the working women. By 1968, the contrast was even sharper: 97 percent of the nonworking women were married, compared with 66 percent of those who worked and 83 percent of the men. Nonworking women had 2.4 times as many children as the workers and somewhat more children than the men. Women who worked in 1968 tended to be single or older or both. The nonworkers tended to be young and to be involved in raising children.

As Table 10 shows, the men and the employed women in 1968 had almost equal amounts of experience on their present jobs, about 3.5

TABLE 10

MEANS FOR VARIABLES MEASURED AFTER 1964 AND EARLY VARIABLES THAT DIFFERED BY SEX OR 1968 EMPLOYMENT OF WOMEN, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Variable	Men (N=2510)	Women employed in 1968 (N=707)	Women not employed in 1978 (N=658)
Age at graduation	23.7014	23.8791	22.2590
Marital status			
1961	.2819	.1804	.1605
1962	.4686	.3464	.5154
1964	.6420	.5148	.8371
1968	.8283	.6640	.9724
Presence of children, 1961	.1850	.1203	.0447
Number of children			
1962	.4766	.3263	.2451
1964	.7774	.4357	.7135
1968	1.4457	.7787	1.8715
Job experience, 1968	3.5009	3.4016	-
Employment			
1964	30.5728	29.6363	17.3175
1968	43.6592	34.4626	-
Enrollment			
1962	33.0240	18.8685	14.0631
1963	33.2976	19.0419	12.7667
1964	27.9589	15.7847	6.0214
1964-1968	.7752	.5973	.3034
1968	.1779	.1638	.0713
Highest degree, 1964	.1454	.0987	.0648
Highest degree, 1968			
None	.5815	.7146	.8677
Master's	.2371	.2186	.1081
Professional	.1187	.0443	.0235
Doctoral	.0627	.0225	.0007
Employer type, 1968			
Profit-making	.5311	.1824	-
Government	.1757	.1165	-
Nonprofit	.2932	.7011	-
Occupation, 1968			
High-paying profession	.4275	.1959	-
Management	.2583	.0472	-
School teaching	.1347	.4945	-
Low-paying profession	.0653	.2133	-
Other	.1142	.0491	-
Importance of money (summed)	1.4541	.5453	-
Earnings, 1968	11.0047	6.7863	-

years. Of course, the women who were not working in 1968 had no such experience to report.

The same similarity in work experience is seen in the extent of employment in 1964, when men and employed women both reported average work weeks of about 30 hours. The women not employed in 1968, on the other hand, reported an average 1964 work week of only 17 hours. In 1968, the men's work week averaged 44 hours, compared with 34 hours for working women.

Evidence for the different concerns of the women workers and nonworkers is provided by the data on enrollment. In 1962, enrollment of workers was only 5 percentage points higher than that of nonworkers. It was 6 points higher by 1963, 10 points higher by 1964, and 9 points higher in 1968. Furthermore, the employed women had enrolled for an average of 3/5 of a full year's course load since 1964, compared with 3/10 among those not employed. These facts are reflected in the rate of higher-degree earning. By 1968, working women were twice as likely as the nonworking women to hold master's degrees (22 percent to 11) and professional degrees (4 percent to 2). Although only 2 percent of the working women held the doctorate in 1968, the percentage for nonworkers was only .1. Their family concerns had deterred them from undertaking advanced education or had removed them from graduate school too early for completion of a higher degree.

Thus, the young women with uninterrupted educational careers (through the bachelor's degree) tended to get married and to have children as soon after graduation as possible. The arrival of a baby tended to remove these women from the labor force, and the differences between the women who were working in 1968 and those who were not reflect this fact.

Turning now to the determination of 1968 earnings, we note in Table 11 that although the effects of parental SES were still small, they had increased somewhat. The influence of father's education was negative and modest for both sexes. The influence of family income was positive and of some importance for men, as the standardized cofficient indicates.

Although the effects of college selectivity were small, they were statistically signficant for men. Graduating from a selective college was still apparently a dubious investment; however. Since selective colleges were more likely than less selective ones to be private and therefore likely to charge higher tuitions, the difference in investment would need a long time to be paid off. College grades also had modest positive effects on earning for both men and women.

The influence of age at graduation on 1968 earnings was positive for both sexes. Being married at graduation cost a woman nearly $1,900 a year, although having children was not an additional disadvantage. For men, neither marital status nor parenthood at graduation influenced earnings seven years later. Marital status and age at graduation were

TABLE 11

TOTAL EFFECTS ON 1968 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Father's education	-.1096**	-.1162	-.104	-.146
Mother's education	-.0127	-.0114	-.010	-.012
Parental family income	.0127**	.0025	.200	.053
Father's occupation				
High-paying profession	-.3319	.5620	-.034	.080
Management	-.0567	.1695	-.008	.028
Low-paying profession	-.6458	-.4008	-.034	-.027
Other	-.3084	-.0331	-.045	-.006
Constant/R^2	11.5566**	8.0281**	.036	.018
Selectivity	.0514**	.0282	.140	.089
GPA	.1634**	.2007*	.071	.110
Constant/R^2	8.4710**	5.7340**	.059	.037
Age at graduation	.0819**	.1102**	.079	.243
Marital status, 1961	.3917	-1.8647**	.051	-.261
Presence of children, 1962	.4153	.5564	.047	.066
Constant/R^2	5.5084**	2.4275	.078	.095
Employer type expected, 1961				
Profit-making	2.2814**	.6912	.326	.085
Government	1.6179**	.7093	.143	.072
Constant/R^2	5.4869**	2.4755	.159	.105
Marital status, 1962	.5220*	-1.1826**	.076	-.205
Number of children, 1962	.3564*	.2148	.089	.061
Constant/R^2	5.2918**	3.3293*	.166	.127

(Table 11 continued)

TABLE 11--Continued

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Employment, 1962				
Full time	.5763	.7288	.075	.116
Part time	-.6348	.1019	-.050	.010
Enrollment, 1962	.0066*	.0085	.083	.108
Constant/R^2	4.6440**	2.8115	.172	.137
Earnings, 1962	.0052**	.0036**	.350	.252
Constant/R^2	6.4550**	2.7736	.219	.160
Employment, 1963				
Full time	.5559*	1.2149**	.081	.221
Part time	.2157	.8087*	.023	.121
Enrollment, 1963	.0039	.0119	.045	.128
Constant/R^2	6.0759**	2.1949	.222	.187
Marital status, 1964	.5068*	-1.1653**	.071	-.212
Number of children, 1964	.1525	-.9641**	.047	-.299
Constant/R^2	5.9261**	2.8576	.226	.244
Job experience, 1964				
10 months	-.0132	-.0568	-.056	-.291
15 months	-.0006	-.0267	-.003	-.137
20 months	.0119	.0034	.050	.018
Employment, 1964	.0120	.0271*	.071	.180
Enrollment, 1964	.0010	.0074	.011	.082
Highest degree, 1964	.9349**	1.1972*	.096	.130
Constant/R^2	6.1435**	2.8377	.238	.272

(Table 11 continued)

TABLE 11--Continued

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Earnings, 1964				
$325 per month	.0015	.0051	.118	.390
$450 per month	.0035	.0065	.284	.497
$575 per month	.0056	.0079	.451	.604
Constant/R^2	7.6374**	3.9673**	.297	.333
Enrollment, 1964-1968	-.3996**	.1707	-.128	.058
Constant/R^2	7.8742**	3.8568*	.309	.336
Marital status, 1968	.3888	-.1760	.043	-.030
Number of children, 1968	.1642	-.5489**	.061	-.243
Constant/R^2	7.2762**	3.5033*	.313	.358
Job experience, 1968	.0437	.0466	.035	.052
Employment, 1968				
30 hours	.0496	.0810	.138	.384
40 hours	.0208	.0442	.006	.209
50 hours	-.0079	.0074	-.008	.004
Enrollment, 1968	-.5073*	.2247	-.056	.030
Highest degree, 1968				
Master's	.5438*	.2482	.067	.037
Professional	.9050**	1.0311	.085	.077
Doctoral	2.9554**	1.1028	.208	.059
Constant/R^2	4.9241**	-.8985	.348	.500

(Table 11 continued)

TABLE 11--Continued

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Employer type, 1968				
Profit-making	1.5702**	.5825	.228	.082
Government	.9379**	1.1275**	.104	.132
Occupation, 1968				
High-paying profession	.5237	.5244	.075	.076
Management	.6888*	.6757	.088	.052
Low-paying profession	-.3073	-.5268	-.022	-.078
Other	-.0847	-1.4207**	-.008	-.112
Constant/R^2	5.6476**	-1.2347	.385	.535
Importance of money (summed)	.3568**	.0985	.147	.034
Ambition (summed)	.3501**	.0583	.096	.017
Constant/R^2	4.2954**	-1.2425	.412	.538

*$p < .01$.

**$p < .001$.

undoubtedly each acting as suppressors of the other's effects. The two variables were of necessity highly correlated, yet for women one had positive and the other negative effects on their 1968 earnings. At a given age, being married had substantial negative effects on a woman's earnings. For a given marital status, an additional year of age produced additional earnings.

The type of employer expected in the senior year had substantial total effects on the 1968 earnings of males and trivial ones on the earnings of females. Expecting to work for a profit-making company increased a man's annual earnings by nearly $2,300, and expecting to work in government increased a man's earnings by over $1,600. Neither type of anticipated employer increased women's earnings.

The set of variables pertaining to college or earlier explains 15.9 percent of the variance in the 1968 earnings among men and 10.5 percent of the variance among women.

Turning to the next group of variables in Table 11, we see that the effects of 1962 family situation were quite different by sex. For women, being married in 1962 decreased their 1968 earnings by nearly $1,200 a year, but having children had no effect. For men, on the other hand, family situation had positive effects. Being married increased annual earnings by $52, and each child added $36. The difference in coefficients for 1962 marital status is significant at the .001 level.

Labor force participation in 1962 had no effect on the 1968 earnings of either sex. Enrollment in 1962, on the other hand, slightly increased men's 1968 earnings.

The effects of 1962 earnings on 1968 earnings were substantial for both men and women. Along with the other 1962 regressors, early earnings account for 21.9 percent of the variance among men and 16.0 percent among women.

Employment and enrollment during 1963 had minor or nonexistent effects on men's 1968 earnings. Working full time increased a man's earnings by about $550 a year. Neither part-time work nor enrollment had a significant impact among men. For women, on the other hand, 1963 experience had a much stronger influence. Working full time increased a woman's annual earnings by over $1,200, working part time by over $800. Added to earlier variables, the 1963 variables explain 22.2 percent of the variance among men and 18.7 percent among women.

A woman's family situation in 1964 had a substantial impact on her earnings in 1968. Table 11 shows that being married in 1964 lowered a woman's 1968 earnings by over $1,150. Each child further lowered a woman's earnings by about $960. Being married increased a man's earnings by over $500, but having children had no effect. Since the effects of these variables are net of past job experience, past enrollment, and past degree holding, possible deficits in experience brought about by child bearing do not account for this disadvantage. Women who gave

behavioral evidence of commitment to family formation were paid less than the minority who had not yet given such evidence.

Job experience gained in 1964 or earlier was of little importance to men at various levels of experience. Women, on the other hand, were penalized for low levels of experience but not for high levels. Number of hours worked in 1964 had no influence on men's 1968 earnings and a modest influence on the earnings of women. Each additional hour worked in 1964 increased a woman's 1968 annual earnings by $27.

One explanation for these findings is that employers rewarded women who had substantial prior labor force experience because they thought that it indicated commitment to working instead of to family formation. This interpretation is supported by the fact that 1964 experience had no effect on the 1968 earnings of men. Employers apparently wanted their female workers to have considerable work experience and to be free of family constraints.

Enrollment in 1964 had no effect on 1968 earnings for either sex, but the possession of a degree increased men's annual earnings by over $930 and a woman's by almost $1,200. In combination with earlier variables, those pertaining to 1964 explain 23.8 percent of the variance in 1968 earnings for men and 27.2 percent for women.

Earnings in 1964 were a strong influence on 1968 earnings for both sexes, especially at high levels. The relationship is curvilinear for both, and this curvilinearity indicates increasing rather than decreasing influence at high levels of 1964 earnings. In other words, low earnings in 1964 were a slight advantage for a man in 1968; but the higher the 1964 earnings, the greater the advantage they were. For women, 1964 earnings were a substantial advantage that paid off even better at high levels. The entire set of independent variables prior to and including 1964 earnings explains 29.7 percent of the variance among men and 33.3 percent among women.

Enrollment between 1964 and 1968 slightly decreased men's earnings but had no effect on those of women.

Of the 1968 situational variables, several had small or insignificant effects. Neither being married nor having children affected a man's earnings. Being married did not influence a woman's earnings, but number of children had a substantial negative effect on the earnings of women, decreasing those earnings by $55 for each child. Experience in one's current job did not have statistically significant effects for either sex. In both groups, an additional hour committed to work was a benefit if persons were working less than full time. At 40 hours a week and above, an additional hour worked had no effect on the earnings of men. For women, on the other hand, another hour worked increased earnings at 40 hours a week but not at 50. The advantage accruing to each additional hour worked at low levels was almost twice as great for a woman as for a man.

Enrollment in 1968 was a slight disadvantage for men and had no effect for women. Holding a master's degree added over $540 a year to the earnings of men but made no significant contribution to the earnings of women. A professional degree yielded over $900 to a man and over $1,000 to a woman. Having a PhD added almost $3,000 to a man's annual earnings. Largely because there were very few women holding a PhD, that degree did not make a significant contribution to the earnings of women. Although having held a higher degree in 1964 was an advantage for a woman in 1968, the immediate payoff from earning a degree in the interim was rather slight.

Because extent of employment was a more important variable for women than for men, the 1968 situational variables added to earlier ones explain 50.0 percent of the variance among women but only 34.8 percent among men.

We can see from Table 11 that type of employer had effects on 1968 earnings similar to those on 1964 earnings (see Table 7). Working for a profit-making organization in 1968 increased a man's earnings by $1,570 a year but a woman's by less than $600. This difference is significant at the .001 level. Working for a government agency increased a man's 1968 earnings by nearly $940 and a woman's by over $1,125.

Occupation had slight effects on the earnings of both men and women. For both sexes, working in a high-paying profession paid about $525 more annually than did working as a school teacher, and working in management paid almost $700 more. Because of the small N, however, the coefficients for women are not significant. Women in "other" occupations, such as sales clerks and stenographers, earned over $1,400 less per year than did women in school teaching.

Neither of the summary measures for the two motivational variables had significant effects for women. Among men, the effects of both were more important. A one-point change on either scale produced an annual earnings increment of about $350.

The determination of 1968 earnings was a complex process marked by a large set of causal variables, few of which had strong effects. The third and fourth columns of Table 12 contain standardized coefficients for all variables that are significant at $p < .01$ for either men or women. With the exception of variables whose effects are curvilinear, the largest such coefficient for men is the .241 associated with the effect of holding a doctoral degree. Working for a profit-making company has a standardized coefficient of .223. The next largest coefficient is the .149 for the effect of the summary measure indicating the importance of money.

Among women, the largest standardized coefficient (except for curvilinear relationships) is the .125 indicating the positive influence of working for a government agency in 1968. Of the 26 coefficients in this analysis, 17 are less than .1. In part, this reflects the fact that the causal processes differed by sex.

TABLE 12

DIRECT EFFECTS OF SIGNIFICANT VARIABLES ON 1968 EARNINGS, BY SEX: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Unstandardized		Standardized	
	Men	Women	Men	Women
Father's education	-.0550*	-.0608	-.052	-.076
Family income	.0049**	.0019	.078	.040
Selectivity	.0304**	.0106	.083	.033
Employment,1962				
Full time	-.6225*	-.0574	-.081	-.009
Part time	-.7248*	-.0112	-.057	-.001
Earnings, 1962	.0023**	.0016	.155	.113
Highest degree, 1964	.5022*	.9443*	.051	.102
Earnings, 1964				
$325 per month	.0014	.0032	.110	.247
$450 per month	.0031	.0045	.248	.344
$575 per month	.0048	.0057	.386	.440
Enrollment, 1964-1968	-.4449**	.2022	-.143	.069
Job experience, 1968	.0760**	.0642	.060	.071
Employment, 1968				
30 hours	.0304	.0826	.084	.391
40 hours	.0181	.0420	.054	.199
50 hours	.0058	.0013	.016	.006
Highest degree, 1968				
Master's	.8679**	.2822	.107	.042
Professional	1.0838**	.8713	.102	.065
Doctoral	3.4266**	1.3078	.241	.070
Employer type, 1968				
Profit-making	1.5392**	.5792	.223	.081
Government	1.1362**	1.0742**	.126	.125
Occupation, 1968				
High-paying profession	.5454*	.7927*	.078	.114
Management	.5203	.9349	.066	.072
Low-paying profession	-.3491	-.4894	-.025	-.073
Other	-.2812	-1.0381*	-.026	-.082
Importance of money (summed)	.3625**	.0602	.149	.021
Ambition (summed)	.3461**	.0815	.095	.024
Constant/R^2	4.1238**	.3259	.399	.489

*p < .01.

**p < .001.

The decomposition of the sex gap in earnings shown in Table 13 also tends to show that women benefited more by experience but less by other variables. The 1968 earnings gap between men and women was $4,233 per year. The column totals show that composition worked a considerable hardship on women. By working for better-paying employers, having higher 1964 earnings, working longer hours, and wanting to make a lot of money--plus other, smaller advantages--men earned over $2,300 more than women in 1968.

Although returns to some variables favored men and returns to others favored women, the total for the coefficients column indicates that, on balance, women's returns were higher than men's. The women's returns advantage was dominated by greater returns to number of hours worked in 1968. Because women were paid more for each additional hour worked (short of working full time), they would have earned over $2,500 more than men, other things being equal. In fact, the negative signs in the coefficients column consistently indicate that experience paid off better for women than for men. Women's 1968 returns to working in 1962 would have been over $470 per year greater than men's. Returns to 1964 earnings would have been over $700 greater for women.

In the coefficients column, the only large negative amount not associated with experience is the $386 indicating an advantage to women from enrollment between 1964 and 1968. That "advantage" stemmed from the fact that women suffered no earnings penalty by such enrollment, but men did.

Women had returns disadvantages from other variables, however. Their failure to capitalize on family income cost $300. The fact that selectivity was unrelated to women's earnings and a modest advantage for men cost the women over $1,000 per year. Differences in returns to higher degrees by 1968 cost women $185. Working for a profit-making employer paid men $175 more per year than women.

Although some differences in detail are obscured by categorizing types of variables, the general outlines revealed by doing so are quite instructive. Parental socioeconomic status benefited men by $368, largely because of greater returns to parental family income. Greater returns to selectivity produced a substantial advantage for men. Employer type was also an advantage to men, due to their working for profit-making organizations. Returns to hours worked were much greater for women, thus producing a large net advantage. Enrollment was a relative advantage to women because they did not suffer an earnings penalty for enrollment whereas men did. Earlier earnings had little net effect on the 1968 earnings gap because men gained by high 1962 earnings and women by high 1964 earnings. Higher-degree holding in 1968 was an advantage for men, partly because men were more likely to hold higher degrees and partly because men's higher degrees paid better. Occupation was a small advantage for men almost entirely because men were in better-paying occupations. Ambition and the importance of money paid men $849 better than women. About half of this advantage was compositional and about half came from greater returns to men.

TABLE 13

DECOMPOSITION OF 1968 MALE-FEMALE EARNINGS GAP USING VARIABLES WITH SIGNIFICANT DIRECT EFFECTS: WHITE COLLEGE GRADUATES, CLASS OF 1961

Independent variable	Composition	Coefficients	Total
Father's education	.0249	.0737	.0986
Parental family income	-.0329	.3019	.2690
Selectivity	.0559	1.0621	1.1180
Employment, 1962	(.0104)	(-.4734)	(-.4629)
Full time	.0116	-.4187	-.4070
Part time	-.0012	-.0547	-.0559
Earnings, 1962	.0636	.2250	.2887
Highest degree, 1964	.0235	-.0436	-.0202
Earnings, 1964	.5073	-.7142	-.2070
Enrollment, 1964-1968	-.0791	-.3865	-.4657
Job experience, 1968	.0075	.0401	.0477
Hours worked, 1968	.2147	-2.7691	-2.5544
Highest degree, 1968	(.2344)	(.1851)	(.4195)
Master's	.0161	.1280	.1441
Professional	.0806	.0094	.0900
Doctoral	.1377	.0477	.1854
Employment type, 1968	(.6040)	(.1823)	(.7863)
Profit-making	.5367	.1751	.7118
Government	.0673	.0072	.0745
Occupation, 1968	(.2695)	(-.0009)	(.2687)
High-paying profession	.1263	-.0484	.0779
Management	.1098	-.0196	.0903
Low-paying profession	.0517	.0299	.0816
Other	-.0183	.0372	.0189
Importance of money (summed)	.3294	.1648	.4943
Ambition (summed)	.0899	.2648	.3546
Total	2.3231	-1.8879	.4352

Shift = $a_m - a_f$ = 4.1238 - .3259 = 3.7979

Gap = Total + Shift = 4.2331

DISCUSSION

The most salient aspect of the earnings gap between men and women is its growth over time. In the first year after graduation (1962), men earned $564 more than women. Two years later, the gap had increased to $1,924, and by seven years after graduation (1968), men were earning $4,218 more. By that time, women's earnings were about 60 percent of men's, a figure that was still less than the gap for all college graduates (U.S. Bureau of the Census, 1973).

Furthermore, the operation of factors accounting for the earnings gap became increasingly complex. In 1962, nearly all of the gap was explained by the greater experience of men who had stopped out in order to work and had thereby gained a head start for their first postbaccalaureate job. In 1964, the entire gap was accounted for, largely by men's advantage in 1962 earnings and 1964 employment, employer type, and occupation. In 1968, the more favorable circumstances of men were partly offset by women's greater returns to such variables as employment. As a result, most of the gap was not accounted for.

Because the factors producing the 1968 gap are complex and because 1968 is the last stage of career development for which earnings data are available, we shall concentrate on the components of the earnings gap for that year.

The variables that influenced the sex gap in earnings were not necessarily those that were the most important determinants of that variable. Thus, college selectivity was a relatively unimportant determinant, but men's greater returns produced an earnings advantage of about $1,000. On the other hand, men's tendency to make more money in 1964 was offset by women's greater returns to their earnings for that year. Similarly, men were more likely than women to work full time; but employers paid a premium to women who worked full time, which was an advantage worth more than $2,500 to the women. Whereas employers apparently penalized men for graduate enrollment, they did not penalize women; this also tended to decrease men's earnings advantage. On the other hand, women were less likely to hold a higher degree by 1968, and this was an earnings advantage for men. Finally, men's greater likelihood of working for profit-making employers and being in management or the high-paying professions was an advantage for them.

To understand the linkages among these apparently disparate findings, one must turn to a matter that was only partly captured in the regression results. In the 1950s and early 1960s, it was almost universally believed that a woman's major role in life was motherhood, and women were instilled with this belief from early childhood. By the time a young woman became a college freshman, her career plans were shaped accordingly.

Thus, half the women in the class of '61 expected to be school teachers, and they had held this expectation from at least the freshman year in college. One reason for the choice of teaching was the belief

that it would be an occupation that permitted easy entry to and exit from the labor force. Thus, when the market for teachers dried up in the early 1970s, college women abandoned this career choice (Freeman, 1976). With their occupational choices concentrated in teaching, librarianship, social work, and other traditionally female fields, women had little opportunity for employment in profit-making organizations and therefore had little access to the higher pay schedules in such organizations.

The same career-choice concentration effectively removed women from access to management and the high-paying professions. These career choices were, at least to some extent, determined by commitment to having and raising a family.

The same orientations impelled a woman to leave the labor force once she had a baby and to stay out of it until her youngest child was of school age (Spitze and Spaeth, 1979). By 1968, women were less likely than men to work full time, and they had accrued less job experience. Yet the total effects of such experience-related variables as employment in 1962, 1963, and 1964, 1964 earnings, and 1968 employment produced greater earnings returns for women than for men.

Apparently employers paid a premium to women for work experience and for working full time. One reason for this state of affairs is that the hiring and firing costs for part-time workers are greater than for full-time workers. Two half-time employees cost twice as much to process as one full-time employee. The same thing holds for experience: The greater the turnover, the greater the hiring and training costs.

The women in the class of '61 reinforced employers' stereotypes about their sporadic labor force participation. Of the 1,685 women in this sample, 66 percent were employed in 1962. By 1964, the women's employment rate had dropped to 52 percent; by 1968, it was 39 percent. Thus, the cluster of outcomes stemming from a woman's commitment to family formation put her at a considerable earnings disadvantage.

In one sense, women in the 1960s were freely making decisions that limited their earnings capacity, but in another sense, these decisions were not free. As we have seen, women were socialized to place a high value on motherhood, and this socialization took place from a very early age. Moreover, there were few sources of support for activities that rested on orientation to a career and that might have had human capital payoffs. The monolithic nature of the norms applying to women in the 1950s and 1960s left them with little real career choice.

These considerations bring us to a final question: How applicable are these results for the 1960s to the careers of women today? The rise of the women's movement and the development of affirmative action programs mean that the conditions influencing a woman's career decisions have changed. The monolithic value system supporting familial values has been greatly eroded. Not only has the birth rate declined substan-

tially, but also women with young children are more likely to be employed.

At first glance, one would expect that the greater labor force participation and concomitantly greater work experience of women would increase their earnings. At least in the 1960s, employers were willing to pay a premium to encourage women to work full time. However, our explanation of this phenomenon is that women who worked full time or who had substantial work experience were a relatively scarce resource. As full-time work becomes more common and as leaving the labor force to have a family becomes less common, the need to pay a premium for such characteristics is lessened. Therefore, women's returns to employment and experience may well be reduced.

A more promising development for women may be their recent entry into traditionally male occupations. To the extent that women enter management and the high-paying professions, their earnings should be higher. Whether the earnings of women will become equal to those of men in these fields is not clear, but the wage gap should be closed somewhat. A study conducted in one firm found that a firm-specific classification of jobs according to their "responsibility" accounted for the entirety of a substantial wage gap (Malkiel and Malkiel, 1973). However, women have traditionally avoided occupations with a great deal of authority and control over others, and employers have, at least until recently, been reluctant to employ women in such positions (Wolf and Fligstein, 1979).

Until women achieve parity with men on occupational authority, the wage gap will probably persist. It was not possible to measure authority for this analysis, but recent research has shown that authority is an important determinant of earnings and that it accounts for a substantial part of the earnings gap (Roos, 1979). Growth in job authority may also account for the longitudinal increase in the earnings gap from 1962 to 1968. In 1962, many men would have been in entry-level positions with little authority. Even men in management training programs would have had little authority in their first year on the job. As men's authority increased, their earnings grew. Women, on the other hand, were not in career lines where their authority could be expected to grow. In contrast to the sharp rise in men's earnings trajectories, those of women were nearly flat.

We should note, by the way, that our findings on the growth of the earnings gap imply that comparisons of starting salaries (see Freeman, 1976) are unreliable indicators of the equalization of earnings.

This analysis has shown the importance of collecting longitudinal data on earnings and of analyzing the patterns by which earnings grow in the early career. It has also shown that development of adequate indicators of occupational authority could be extremely important in accounting for the sex gap in earnings.

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APPENDIX

QUESTIONNAIRE ITEMS FOR ANALYSIS OF EARNINGS*

PARENTAL SES

A56. Please indicate your parents' (or step-parent's if parent is dead) highest educational attainment. (Circle one in each column.)

	Father	Mother
8th grade or less	8	8
Part High School	10	10
High School graduate	12	12
Part College	14	14
College graduate	16	16
Graduate or professional degree beyond the bachelor's	18	18

A58. Which of the following is the appropriate income category for your parental family? Consider annual income from all sources before taxes. (Circle one.)

Less than $5,000 per year	1
$5,000 - $7,499	2
$7,500 - $9,999	3
$10,000 - $14,999	4
$15,000 - $19,999	5
$20,000 and over	6
I have no idea	-2

B24. What kind of work did your father do when you were age 16? *(If deceased or retired, give his major occupation when he was working)*

Occupation: _____

Duties: _____

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*Questions are identified by wave with letters assigned to each wave as follows: A, 1961 (senior year); B, 1962; C, 1963; D, 1964; and E, 1968.

ACADEMIC PERFORMANCE

A45. What is your overall (cumulative) grade point average for undergraduate work at your present college?

IMPORTANT: If your school uses letter grades (A,B,C, etc.) please circle the code number which is closest to your letter grade average.

Warning: The number which you circle probably does not correspond to the number equivalent at your school, e.g. at most schools "straight A" equals 4.0, here it equals "0".

If your school does not use letter grades, there should be special instructions accompanying your questionnaire. If, through clerical error, the instructions are missing, write your average in the margin.

(Circle one.)

Letter Grade	Code Number
A	9
A-	8
B+	7
B	6
B-	5
C+	4
C	3
C-	2
D+	1
D or lower	0

AGE

E43. In what year were you born? 19_____

FAMILY STATUS

A51. Marital Status. (Circle one.)

Single, don't expect to be married before Fall, 1961	1
Single, expect to be married before Fall, 1961	2
Married, one or more children or expecting a child	3
Married, no children	4
Widowed, Divorced, Separated	5

B2. What is your current marital status? *(Circle one)*

Single, no definite plans to be married at present	0
Single, have definite plans to be married before Sept. 1, 1962	1
Single, have definite plans to be married, after Sept. 1, 1962	2
Widowed, Divorced, Separated *(answer A only)*	3
Married *(answer A and B)*	4

IF WIDOWED, DIVORCED, SEPARATED, ANSWER A ONLY:

IF MARRIED, ANSWER A AND B:

A. How many children do you have now (count a current pregnancy as one child)? *(Circle one)*

None	0
One	1
Two	2
Three	3
Four or more	4

B. What is your spouse doing this Spring? *(Circle any which apply)*

Working full-time	X
Working part-time	0
Military service (full-time active duty)	1
Housewife, mother	2
Going to school	3
Other *(Circle and Specify)* _____	4

D2. What is your current marital status? (*Circle one*)

Single, no definite plans to be married at present 0
Single, have definite plans to be married 1
Widowed, Divorced, Separated 3
Married 4

IF MARRIED:
A. What is your spouse doing this Spring? (*Circle any that apply*)

Working full-time X
Working part-time 0
Military service (full-time active duty) 1
Housewife, mother 2
Going to school 3
Other (Circle and Specify) _____ 4

IF MARRIED, WIDOWED, DIVORCED, SEPARATED:
B. How many children do you have now (count a current pregnancy as one child)? (*Circle one*)

None 0
One 1
Two 2
Three 3
Four or more 4

E 44. What is your current marital status? (Circle one.)

Single, no definite plans to be married at present 1
Single, have definite plans to be married 2
Widowed, divorced, separated 3
Married 4

IF YOU ARE NOT MARRIED NOW, PLEASE SKIP TO QUESTION 47.

E 45. A. Please write in the number of children you now have (count a current pregnancy as one child.) If you have no children, write in "0" and go to Q. 46.

Number of children _____

JOB EXPERIENCE

PLEASE ANSWER THE FOLLOWING QUESTIONS IN TERMS OF YOUR PRESENT JOB. IF YOU HAVE MORE THAN ONE JOB, ANSWER IN TERMS OF THE JOB ON WHICH YOU SPEND THE MOST TIME.

D14. When did you start working on this job? (*Circle one*)

Before June, 1961 6
Between June & December, 1961 5
During 1962 4
Between January & June, 1963 3
Between July & December, 1963 2
In 1964 1

E27. When did you start working on the job you now hold? If you are not working now circle 999 and go to Q. 30.

I started on my present job in 19_____

EMPLOYMENT

B8. Are you employed now? (Include active military service but not reserve programs.) *(Circle one)*

No..... 0
Yes, full-time..... 2
Yes, part-time..... 1

C1. What are you doing now (since the first of the year)? *(Column A)*
Also, what will you probably be doing this Fall? *(Column B)*

	A. Now *(circle any which apply)*	B. In the Fall *(circle any which apply)*
Working full-time at a type of job which I expect to be my long-run career field	1	1
Working full-time at a type of job which will probably not be my long-run career field	2	2
Working part-time	3	3
Working as a teaching or research assistant in conjunction with my postgraduate degree program	4	4
Going to graduate or professional school for a postgraduate degree	5	5
Taking courses, but not toward a postgraduate degree	6	6
In the military service (full-time active duty)	7	7
Being a housewife, mother	8	8
Other, *(Circle and specify)*	9	9

D12. How many hours a week do you work on your present job? *(Write in the average number of hours worked per week.)*

→ [ ][ ]

E28. How many hours a week do you work on your present job? (Write in the average number of hours worked per week. If you have more than one job, answer in terms of the job on which you spend the most time.)

Number of hours worked _____

ENROLLMENT

B29. Which of the following best describes your current (most recent) study program? *(Circle one)*

Studying in a program in which full-time study is possible and carrying--
- full-time load or greater..... 5
- more than half, but less than full load..... 4
- half a course load or less..... 3

Studying in a night school, or similar program in which "full-time study" is impossible 2

Taking a Correspondence course..... 1

C18. Please indicate which category best describes what your enrollment status was, is, or probably will be for each of the following academic terms. *(Circle one in each of columns A, B, C, and D.)*

		A *(Circle one)*	B *(Circle one)*	C *(Circle one)*	D *(Circle one)*
	IF QUARTER OR TRIMESTER SYSTEM →	Fall '62	Winter '63	Spring '63	Fall '63
	IF SEMESTER SYSTEM →	Fall '62	Spring '63	Circle B Below	Fall '63
ENROLLED	In a program in which "full-time study" is possible and carrying:				
	full course load or greater	11	11	11	11
	less than a full course load	10	10	10	10
	no courses, enrolled only for completion of thesis, independent research, etc.	1	1	1	1
	In night school or other program in which full-time study is impossible:	2	2	2	2
	For correspondence courses	3	3	3	3
NOT ENROLLED BECAUSE	Interrupting my studies temporarily	4	4	4	4
	No intention of going on further	5	5	5	5
	Completing thesis, doing independent research, etc.	6	6	6	6
	Normally attend summer sessions only	7	7	7	7
	Not on semester system			8	
	Other *(Circle and specify)*	9	9	9	9

D35. **Please indicate which category best describes what your enrollment status was, is, or probably will be for each of the academic terms that apply to your school.** *(Circle one in each column that applies to the school you attend.)*

	For Schools on				
	Semester or Trimester System		Quarter System		
	Fall 1963 *(Circle one)*	Spring 1964 *(Circle one)*	Fall 1963 *(Circle one)*	Winter 1964 *(Circle one)*	Spring 1964 *(Circle one)*
ENROLLED:					
In a program in which "full-time study" is possible and carrying:					
Full course load or greater	11	11	11	11	11
More than half but less than full course load	10	10	10	10	10
Less than half course load	1	1	1	1	1
No courses, enrolled for completion of thesis, etc.	2	2	2	2	2
In a program in which full-time study is impossible	3	3	3	3	3
NOT ENROLLED BECAUSE:					
I received the highest degree I was working for	4	4	4	4	4
Interrupting my studies temporarily	5	5	5	5	5
Completing thesis	6	6	6	6	6
Completing other degree requirements	7	7	7	7	7
Other	8	8	8	8	8

E24. During this academic year (1967-68), have you been enrolled in a program leading to a degree higher than an undergraduate bachelor's degree? (Circle one.)

Yes 1

No 0

HIGHEST DEGREE

B6. Please indicate:

	The highest degree you now hold (Circle one)	The next degree you expect to receive (Circle one)	The highest degree you expect to gain eventually (Circle one)
None or no further degree	0	0	0
Bachelor's (undergraduate) e.g., B.A., B.S., B.E., B.Phar., etc.	1	1	1
POST BACHELORS: Professional e.g., LL.B., MSW, M.D., J.D., M.Ed., etc.	2	2	2
POST BACHELORS: Arts and Science Master's e.g., M.A., M.S., etc	3	3	3
POST BACHELORS: Doctorate e.g., Ph.D., Ed.D., J.S.D., etc.		4	4

D6. What is the highest degree you *expect* to hold, and what is the highest degree you hold *now*?

(Circle one in each row)	Undergraduate Bachelor's (BA, BS, BE, BPhar, etc.)	Professional (LLB, MSW, MD, JD, MED, etc.)	Arts & Science Master's (MA, MS, etc.)	Doctorate (PhD, EdD, ScD, etc.)
A. Highest degree you expect to hold	1	2	3	4
B. Highest degree you now hold	1	2	3	4

E22. What is the highest degree you now hold, and what is the highest degree you expect to hold?

(Circle one on each line.)	Undergraduate Bachelor's (BA, BS, BE, BPhar, etc.)	Professional (LLB, MSW, MD, JD, MED, etc.)	Arts & Science Master's (MA, MS, etc.)	Doctorate PhD, EdD, ScD, etc.)
Highest degree you now hold	1	2	3	4
Highest degree you expect to hold .	1	2	3	4

EMPLOYER TYPE

A25. Which of the following will be your most likely employer when you begin full time work in your anticipated career field? (If you have a definite expectation, circle one; if not, circle the most likely possibilities.)

Private company with 100 or more employees . . . . . y
Private company with fewer than 100 employees or professional partnership . x
Family business 0
Self-employed 1
Research organization or institute 2
College or University or Junior College 3
Elementary or Secondary School or School System 4
Other educational institutions (e.g. Technical Vocational School). . 5
Federal Government (U.S.) 6
State or Local Government 7
Hospital, Church, Clinic, Welfare Organization, etc. 8
Other (Circle and specify:_____). . . 9

B12. Which of the following best describes your employer? *(Circle any that apply)*

I am self-employed, or in business owned by my family	y
Private company with 100 or more employees	x
Private company with fewer than 100 employees	0
Professional partnership	1
Research organization or institute	2
College or University or Junior College	3
Elementary or Secondary School or School System	4
Hospital or Clinic	5
Church, Welfare, or other non-profit organization	6
Federal Government (U.S.)	7
State or Local Government	8
Other *(Circle and Specify)* _____	9

D 17. Which of the following best describes your employer? *(Circle as many as apply)*

I am self-employed, or in business owned by my family	1
I have my own professional office	2
Professional partnership	3
Private profit-making company or corporation	4
College or university	5
Junior college	6
Non-profit research organization or institute, not affiliated with a university	7
Public welfare organization	8
Private welfare organization	9
Hospital or clinic	1
Elementary or secondary school or school system (not junior college)	2
Federal government (U.S.)	3
State government	4
Local government	5
Church	6
Other (Circle and Specify) _____	7

E31. Which of the following best describes: (A) The kind of employer you work for now, and (B) The kind of employer you expect as your long-range employer?

	A. Present employer (Circle as many as apply.)		B. Expected long-range employer (Circle as many as apply.)	
	Yes	No	Yes	No
Self-employed, or in business owned by my family	1	0	1	0
My own professional office	1	0	1	0
Professional partnership	1	0	1	0
Private, profit-making company or corporation	1	0	1	0
College or university	1	0	1	0
Junior college	1	0	1	0
Non-profit research organization or institute, not affiliated with a university	1	0	1	0
Public welfare organization	1	0	1	0
Private welfare organization	1	0	1	0
Hospital or clinic	1	0	1	0
Elementary or secondary school or school system (not junior college)	1	0	1	0
Federal government (U. S.)	1	0	1	0
State government	1	0	1	0
Local government	1	0	1	0
Church	1	0	1	0
Other (Circle and specify) _____	1	0	1	0

OCCUPATION

B13. Please describe:

A. What kind of work do you do (e.g., high school physics teacher, assistant sales engineer, wheat farmer, clothing buyer for department store)?_____

_____

B The two major duties: (1) _____

_____

(2) _____

_____

D16. Please describe:

A. What kind of work do you do (e.g., high school physics teacher, assistant sales engineer, wheat farmer, clothing buyer for department store)?_____

_____

B. The two major duties: (1)_____

_____

(2)_____

_____

E29. A. From the list enclosed with the questionnaire, please write in the number of the field that best describes your present job.

Number of job field _____

B. What kind of work do you do (e.g., high school physics teacher, assistant sales engineer, wheat farmer, clothing buyer for department store)?

C. The two major duties:

(1)_____

_____

(2)_____

_____

MILITARY SERVICE, MILITARY SCIENCE

911 Military Service, Military Science (as either career field or current employment)

BUSINESS AND ADMINISTRATION

82 Advertising, Public Relations
92 Accounting
87 Secretarial Science (or employed as a secretary)
42 Clerical Work, Office Work (other than secretarial
43 Sales (Retail or Wholesale, Real Estate, Insurance, etc.)
44 Finance (Banking, Capital Management)
48 Marketing, Market Research
49 Purchasing (or employed as Purchasing Agent, Buyer, etc.)
411 Management, Business Administration (or employed as Manager or Management Trainee not covered by any other fields)
91 All other business and commercial fields (Personnel Work, Industrial Relations, Production, etc.)
83 Public Administration (or employed as Government Administrator if not covered by other fields)

ENGINEERING

10 Aeronautical
11 Civil (including Agricultural, Architectural, Civil, Sanitary)
12 Chemical (including Ceramic)
13 Electrical
14 Engineering Science, Engineering Physics, Engineering Mechanics
15 Industrial
16 Mechanical (including Naval Architecture and Marine, Welding, Textile)
17 Metallurgical
18 Mining (including Mining, Geological, Geophysical, Petroleum)
111 Engineering, General and other specialties

PHYSICAL SCIENCE (NOTE: Secondary School Science Teaching is Classified under Education)

01 Astronomy, Astrophysics
02 Chemistry (excluding Biochemistry which is 32)
03 Physics (excluding Biophysics which is 34)
04 Geography
05 Geology, Geophysics
06 Oceanography
07 Metallurgy
08 Meteorology (Atmospheric sciences)
100 Physical Science, General and other specialties

09 Mathematics and Statistics (NOTE: Secondary School Mathematics Teaching is classified under Education)

EDUCATION (NOTE: Junior College, College and University Teaching should be coded by Field of Specialization, not as Education)

50 Elementary (including Kindergarten and Nursery School)
Secondary—Academic Subject Fields
51 English
52 Modern Foreign Languages
53 Latin, Greek
54 History, Social Studies
55 Natural Science (General, Physics, Chemistry, Biology, etc.)
56 Mathematics

Specialized Teaching Fields
57 Physical Education, Health, Recreation
58 Music Education
59 Art Education
60 Education of Exceptional Children (Including Speech Correction)
61 Agricultural Education
62 Home Economics Education
63 Business Education
64 Trade and Industrial Education (Vocational)
65 Industrial Arts Education (Non-Vocational)
66 Counseling and Guidance
67 Educational Psychology
68 Administration and Supervision
611 Education, General and other specialties

HEALTH PROFESSIONS

20 Dentistry or Pre-Dentistry
21 Medicine or Pre-Medicine
22 Nursing
23 Optometry
24 Pharmacy
25 Physical Therapy
26 Occupational Therapy
27 Veterinary Medicine or Pre-Veterinary
28 Medical Technology or Dental Hygiene
211 Other Health Fields
69 Nutrition

BIOLOGICAL SCIENCES

19 Ecology
29 Plant Physiology
30 Anatomy
31 Biology
32 Biochemistry
33 Botany and Related Plant Sciences
34 Biophysics
35 Entomology
36 Genetics
37 Microbiology (Including Bacteriology, Mycology, Parasitology, Virology, etc.)
38 Pathology
39 Pharmacology
40 Physiology
41 Zoology
311 Other Biological Science Fields
511 Plant Pathology

AGRICULTURAL AND RELATED FIELDS

45 Agricultural Sciences (Including Animal Husbandry, Agronomy, Farm Management, Horticulture, Soil Science, Soil Conservation, etc.)
46 Forestry, Fish and Wild Life Management
27 Veterinary Medicine
47 Farming (Code as occupation only, not as field of study)

PSYCHOLOGY (NOTE: Code Psychiatry as Medicine 21)

70 Clinical Psychology
66 Counseling and Guidance
67 Educational Psychology
71 Social Psychology
72 Industrial and Personnel Psychology
73 Experimental and General Psychology
74 Other Psychological Fields

SOCIAL SCIENCES

75 Anthropology, Archeology
76 Economics
04 Geography
83 History
77 Area and Regional Studies
78 Political Science, Government, International Relations
93 Public Administration
79 Sociology
95 Social Work, Group Work
711 Social Science, General and Other

HUMANITIES

80 Fine and Applied Arts (Art, Music, Speech, Drama, etc.)
81 English, Creative Writing
82 Classical Languages and Literatures
83 History
84 Modern Foreign Languages and Literatures
85 Philosophy
811 Humanities, General and Other Fields

OTHER FIELDS AND OCCUPATIONS

86 Architecture, City Planning
94 Foreign Service (Code as occupation only, not field of study)
98 Home Economics (Code either as a field of study or as an occupation if you mean working as a home economist for pay)
59 Housewife (Code as occupation only, not as field of study)
87 Journalism, Radio-Television, Communications
95 Law, Pre-Law
88 Library Science, Archival Science
96 Social Work, Group Work
89 Theology, Religion (Employment as a Clergyman or a religious worker)

110 Field of Study or Job Which has no Near Equivalent in this List. (If you use this code, please describe your field in a word or two under the questions where it applies.)

101 Do not expect to be either employed full time or to be a Housewife. (Code only for questions about careers, not for field of study.)

997 None
999 Not employed

EMPLOYER SIZE

D18. A. About how many people are employed in the entire organization for which you work? (State or federal employees give the approximate number of people in your Department, e.g., State, Commerce, Motor Vehicles, etc. Self-employed give the approximate number of your employees.) *(Circle one in Column A)*

B. About how many of these work in the same plant or office as you do? *(Circle one in Column B)*

	A. Total Organization	B. Same Plant or Office
Less than 10	1	1
10– 99	2	2
100–499	3	3
500–999	4	4
1,000–2,499	5	5
2,500 and over	6	6

IMPORTANCE OF MONEY

A29. Which of these characteristics would be very important to you in picking a job or career? (Circle as many as apply.)

Making a lot of money . . . . . y
Opportunities to be original and creative X
Opportunities to be helpful to others or useful to society 0
Avoiding a high pressure job which takes too much out of you 1
Living and working in the world of ideas 2
Freedom from supervision in my work 3
Opportunities for moderate but steady progress rather than the chance of extreme success or failure 4
A chance to exercise leadership 5
Remaining in the city or area in which I grew up 6
Getting away from the city or area in which I grew up 7
Opportunity to work with people rather than things 8

B29. Which of these characteristics would be very important to you in picking a job or career? *(Circle as many as apply)*

Making a lot of money X
Opportunities to be original and creative 0
Opportunities to be helpful to others or useful to society 1
Avoiding a high pressure job which takes too much out of you 2
Living and working in the world of ideas 3
Freedom from supervision in my work 4
Opportunities for moderate but steady progress rather than the chance of extreme success or failure 5
A chance to exercise leadership 6
Opportunity to work with people rather than things 7

D75. Which of these characteristics would be very important to you in picking a job or career? (*Circle as many as apply*)

Making a lot of money	X
Opportunities to be original and creative	0
Opportunities to be helpful to others or useful to society	1
Avoiding a high pressure job which takes too much out of you	2
Living and working in the world of ideas	3
Freedom from supervision in my work	4
Opportunities for moderate but steady progress rather than the chance of extreme success or failure	5
A chance to exercise leadership	6
Opportunity to work with people rather than things	7

E32. A. Which of these characteristics would be very important to you in picking a job or career? (Answer in the column to the left.)

B. Whether or not you desire each characteristic, please rate your job in terms of the opportunities it gives you for achieving <u>each</u> of the following. If you are not working, please skip B.

A. Would be very important (Circle as many as apply.) Yes	No		B. Chances for this in my job are . . . (Circle one on each line.) Excellent	Average	Poor
1	0	Making a lot of money	3	2	1
1	0	Opportunities to be original and creative	3	2	1
1	0	Opportunities to be helpful to others or useful to society	3	2	1
1	0	Avoiding a high-pressure job which takes too much out of you	3	2	1
1	0	Living and working in the world of ideas	3	2	1
1	0	Freedom from supervision in my work	3	2	1
1	0	Opportunities for moderate but steady progress rather than the chance of extreme success or failure	3	2	1
1	0	A chance to exercise leadership	3	2	1
1	0	Opportunity to work with people rather than things	3	2	1
1	0	Opportunities for advancement	3	2	1
1	0	A stable, secure future	3	2	1

A62. Listed below are some adjectives, some of which are "favorable," some of which are "unfavorable," some of which are neither.

Please circle the ones which best describe you. Consider only those which are most characteristic of you as a person. (Most people choose five or six, but you may choose more or fewer if you want to.)

Ambitious X	Good Looking X	Moody X
Athletic 0	Happy 0	Obliging 0
Calm 1	Hard Driving 1	Outgoing 1
Cautious 2	High Strung 2	Poised 2
Cooperative . . . 3	Idealistic 3	Quiet 3
Cultured 4	Impetuous 4	Rebellious . . . 4
Dominant 5	Intellectual 5	Reserved 5
Easy Going . . . 6	Lazy 6	Shy 6
Energetic 7	Low Brow 7	Sophisticated . . 7
Forceful 8	Methodical 8	Talkative 8
Fun Loving . . . 9	Middle Brow 9	Witty 9

B 52. Listed below are some adjectives, some of which are "favorable," some of which are "unfavorable," some of which are neither. *(Please circle the ones which best describe you.)* Consider only those which are most characteristic of you as a person. (Most people choose five or six, but you may choose more or fewer if you want to.)

Ambitious..... 0	Energetic..... 0	Methodical..... 0	Quiet..... 0
Athletic..... 1	Fun Loving..... 1	Middle Brow..... 1	Rebellious..... 1
Calm..... 2	Good Looking..... 2	Moody..... 2	Religious..... 2
Cautious..... 3	Happy..... 3	Nervous..... 3	Reserved..... 3
Conventional..... 4	Hard Driving..... 4	Non-religious..... 4	Shy..... 4
Cooperative..... 5	High Strung..... 5	Obliging..... 5	Sophisticated..... 5
Cultured..... 6	Idealistic..... 6	Outgoing..... 6	Talkative..... 6
Dominant..... 7	Impetuous..... 7	Poised..... 7	Tense..... 7
Easy Going..... 8	Intellectual..... 8	Politically Liberal.... 8	Unconventional..... 8
Efficient..... 9	Lazy..... 9	Politically Conservative 9	Witty..... 9

D90. Listed below are some adjectives, some of which are "favorable," some of which are "unfavorable," some of which are neither. (*Please circle the ones which best describe you.*) Consider only those which are most characteristic of you as a person. (Most people choose five or six, but you may choose more or fewer if you want to.)

Ambitious.....X	Easy Going.....X	Lazy.....X	Quiet.....X
Aggressive.....0	Efficient.....0	Methodical.....0	Rebellious.....0
Calm.....1	Energetic.....1	Middle Brow.....1	Religious.....1
Cautious.....2	Fun Loving.....2	Moody.....2	Reserved.....2
Competitive.....3	Good Looking.....3	Nervous.....3	Sensual.....3
Conventional.....4	Happy.....4	Non-religious.....4	Shy.....4
Cooperative.....5	Hard Driving.....5	Outgoing.....5	Sophisticated.....5
Creative.....6	High Strung.....6	Physically Strong.....6	Talkative.....6
Cultured.....7	Idealistic.....7	Poised.....7	Tense.....7
Dominant.....8	Impetuous.....8	Politically Liberal.....8	Unconventional.....8
Dependent.....9	Intellectual.....9	Politically Conservative....9	Witty.....9

B 57. Please estimate your current average monthly income before taxes and deductions. Do not include any income you may have from scholarships, assistantships, or other stipends awarded to students. *(Circle one in each column)*

	From Your Own Employment *(Circle one)*	Total Monthly Income (Including spouse's and other income) *(Circle one)*
None	0	0
$1 - 199	1	1
$200 - 299	2	2
$300 - 399	3	3
$400 - 599	4	4
$600 - 799	5	5
$800 - 999	6	6
$1,000 or more	7	7

D108. Please estimate your current average monthly income before taxes and deductions. *Do not* include any income you may have from scholarships, assistantships, or other stipends awarded to students. *(Circle one in each column)*

	Total Monthly Income (Including spouse's and other income)	Income From *Your own Employment*	
None	0	0	None
$1 - 199	1	1	$1 - 199
$200 - 299	2	2	$200 - 299
$300 - 399	3	3	$300 - 399
$400 - 499	4	4	$400 - 499
$500 - 599	5	5	$500 - 599
$600 - 699	6	6	$600 - 699
$700 - 799	7	7	$700 - 799
$800 - 999	8	8	$800 - 999
$1,000 or more	9	9	$1,000 or more

E 42. How much money do you earn and do you expect to earn per year from your own employment and from all sources for your entire family?

	My own employment	Total family income
Now	$____,000	$____,000
Six years from now	$____,000	$____,000
When you are forty-five years old	$____,000	$____,000